

RESPONSIVENESS SUMMARY NORTH STAR STEEL COMPANY AIR QUALITY CONTROL PERMIT NUMBER 1000992

OPENING NOTE

All terms within this document that are written in italics are defined in a separate document entitled “Responsiveness Summary Definitions.” A list of abbreviations used within this document can be found at the end of this document.

INTRODUCTION

North Star Steel Arizona (NSSA) applied for air quality control permit number 1000992 for the operation of a steel mini-mill located **approximately four miles south-southwest of the town of Kingman in Mohave County, Arizona.**

By recycling steel scrap, the facility will produce up to 800,000 tons of steel reinforcing bar and wire each year. To create these products, the steel scrap is melted and refined, cast into billets, and rolled into the finished products. In the *melt shop*, steel scrap is melted and refined in an *electric arc shaft furnace (EASF)*. Once melted, the steel’s properties are adjusted in a *ladle metallurgical furnace (LMF)* so it meets product specifications.

The emission units and emitting activities at the facility are the *melt shop*, which includes the *EASF*, the *LMF*, *melt shop baghouse*, *melt shop baghouse dust handling system*, the continuous casting machine, slag handling operations, two natural gas-fired *tundish* preheaters, two natural gas-fired ladle preheaters, one natural gas-fired *tundish* dryer, two natural gas-fired ladle dryers, miscellaneous steelmaking operations, one natural gas-fired *reheat furnace*, three natural gas-fired cut-off torches, one natural gas-fired bar test furnace, one natural gas-fired boiler, two natural gas-fired water heaters, two mechanical-draft *wet cooling towers*, and paved and unpaved roads.

Pollution control measures and equipment required by this permit include a scrap management plan to minimize *volatile organic compounds (VOCs)* and trace metals emissions; *direct-shell evacuation control (DEC) system* and *enhanced secondary post-combustion chamber (ESPCC)* on the *EASF* exhaust; a baghouse on the *melt shop* exhaust; low-nitrogen oxide burners on the *reheat furnace*; high-efficiency *drift eliminators* on the *wet cooling towers*; vacuuming of paved roads; and use of a chemical dust suppressant on unpaved roads.

COMPLIANCE HISTORY OF NSSA

On August 18, 1993, the Arizona Department of Environmental Quality (ADEQ) issued a *minor source* air quality control permit (no. 151232) to NSSA for the installation and operation of a steel mini-mill. The decision to issue this permit was based on representations by NSSA that the facility

would be constructed and operated in such a manner that the emissions would not exceed 100 tons per year for each criteria pollutant. NSSA intended to meet this limit for *carbon monoxide (CO)* by capturing *CO* emissions through the use of a *DEC system*. This system would funnel emissions from the *electric arc furnace (EAF)* to a *post combustion chamber (PCC)* where pure-oxygen is added for combusting *CO* to carbon dioxide thereby reducing *CO* emissions. The permit included specific conditions which required NSSA to conduct an initial *performance test* to verify the effectiveness of this control technology after the plant was operating at full capacity.

NSSA began routine production of steel on September 17, 1996. As a result of an inspection on September 25, 1996, the Department issued a *notice of violation (NOV)* to NSSA for failure to operate in accordance with the terms and conditions of its permit on October 18, 1996. The *NOV* cited the following problems:

- Failure to construct a duct to vent *particulate matter (PM)* emissions from the furnace additive silo *baghouses* to the *melt shop baghouse*;
- Failure to apply gravel and dust suppressants to unpaved roads;
- Failure to vacuum sweep paved roads;
- Failure to observe and record the *opacity* of emissions from source equipment at required intervals; and
- Installation of fuel burning equipment not listed or approved under the *minor source* permit.

After verifying NSSA's corrective actions and receiving an application for a *significant permit revision* to reflect all of the installed equipment, the Department issued a letter acknowledging correction of these violations on February 7, 1997.

In the *minor source* permit, the facility was required to conduct *performance tests* within 90 days after reaching its maximum operating capacity, but no later than 180 days after *start up* of the facility. However, NSSA requested an extension for conducting the initial *performance test* because the facility had not reached maximum operating capacity. ADEQ later found out that NSSA had failed to disclose its in-house testing results, which indicated the company had grossly exceeded its emissions limits on a regular basis.

On July 9, 1997, ADEQ issued another *NOV* to NSSA for failure to conduct *performance tests* within time allotted by the extension. NSSA conducted the first official *performance tests* on May 4 through May 7, 1998. The results of these *performance tests* showed that NSSA could not meet the permitted emission limits for *nitrogen oxide (NO_x)*, *CO*, and *VOCs*.

NSSA entered into an *Order of Abatement On Consent* with ADEQ on July 29, 1998. This Order allowed NSSA to continue the operation of its mini-mill with emission rates higher than originally set in the permit while still ensuring that the health-based *National Ambient Air Quality Standards (NAAQS)* were protected. To ensure the minimization of emissions and that NSSA continued to meet federally-established *NAAQS*, NSSA agreed to conduct monitoring and emission testing at more frequent intervals than required in the permit. In addition, NSSA admitted that the facility was not a *minor source*, but rather a *major source* of pollution, and agreed to obtain a *major source Prevention of Significant Deterioration (PSD)* permit. The Order also contained language stating that it would remain in effect until NSSA is either issued a *major source* permit or enters into a judicial *Consent Judgment* with ADEQ that resolves NSSA's civil liability for non-compliance.

Between September 1998, and October 2000, under the terms and conditions of the Order, NSSA conducted emissions testing on at least a quarterly basis, measuring emissions of *CO*, *NO_x*, and *SO₂* to ensure that actual emissions were less than the emission limits established in the Order. All the *performance tests* conducted by NSSA demonstrated that the company met these emission limits.

On June 13, 2001, the State of Arizona, on behalf of ADEQ, filed a Civil Complaint alleging NSSA violated Arizona air quality statutes and rules by:

- Constructing and operating the facility without the proper *major source* permit;
- Installing and operating unpermitted equipment;
- Failing to test the emissions from stacks in a timely manner;
- Starting up and operating the *EASF* for approximately one year without the use of the *PCC* to reduce *CO* emissions as required in the *minor source* permit; and
- Operating the *EASF* with emissions of *CO*, *NO_x*, and *VOCs* in excess of permitted limits and failure to report these *excess emissions* to ADEQ.

On June 22, 2001, NSSA entered into a *Consent Judgment* with ADEQ. As part of this settlement, NSSA paid a \$5 million civil penalty and conducted a *supplemental environmental project (SEP)* by paying \$2.75 million to the Mohave County Supplemental Environmental Project Revocable Trust for paving of dirt roads to control dust in the Golden Valley area. NSSA also presented a verbal statement of apology to the Mohave County Board of Supervisors and the Kingman City Council, and published this public apology in the Kingman Daily Miner. This is the largest environmental civil Penalty ever collected by a State without the involvement of the United States Environmental Protection Agency (USEPA), and the largest civil penalty collected by any agency, including the USEPA, for air quality violations at a single facility.

On November 5, 2001, NSSA pleaded guilty to two criminal felony counts at the same time that criminal charges were filed in a direct complaint. As part of this plea, NSSA paid a \$3.2 million

criminal penalty, contributed \$425,000 to establish environmental enforcement training, reimbursed the Attorney General's Office \$250,000 for fees and the cost of the investigation, and contributed \$125,000 to a fund to pay for paving dirt roads within the City of Kingman. This case involved the largest clean air penalty ever levied against a company in Arizona history for air quality violations.

PROCESS DESCRIPTION

NSSA recycles steel scrap to produce steel reinforcing bar, steel wire, and bar and steel wire products. The steel production capacity of the facility is 120 tons per hour. The facility may operate 24 hours per day, 365 days per year, and is permitted to produce a maximum of 800,000 tons of steel per year.

Scrap material is unloaded from rail cars and trucks, by dumping or using overhead cranes equipped with magnets, into piles in an unpaved scrap yard. Overhead cranes are also used to load scrap from the piles in the scrap yard into buckets that are dumped into a bottom-tapping direct-current *EASF*. The *EASF*, which is a type of *EDF* with significant differences from conventional alternating-current *EDFs*, is the primary piece of process equipment and the primary source of emissions at NSSA. Following scrap addition, fluxing agent and carbon material are added, and the *EASF* roof is closed. The direct-current electrode is lowered into the furnace to begin melting the scrap. Slag is removed from the furnace through a door in the furnace wall.

Natural gas-fired burners are used to dry and to preheat the refractory materials in ladles and in the *tundish* preheater. The molten steel is poured through a tap-hole in the furnace wall into a preheated ladle, which is conveyed to the *LMF*. The molten steel in the ladle is analyzed, the chemistry is adjusted with alloys or other additives as necessary, and the molten steel is heated with electrodes.

The ladle is then moved from the *LMF*, and the molten steel charged from the ladle into a preheated *tundish* and then into the continuous caster. The steel billets produced by the caster are cut using a torch cut-off machine. The billets are either hot-charged directly into the *reheat furnace* or are stored in a billet storage yard before being cold-charged into the *reheat furnace*.

The *reheat furnace* heats steel billets to the proper temperature for malleability for rolling into finished products. This furnace is a walking-beam type furnace with five heating zones and the capability to charge and discharge billets through its side by means of roller tables. It fires exclusively natural gas, with a maximum heat input of 74.0 million BTU per hour.

Add-on pollution control equipment at NSSA includes a *DEC system* and a natural gas-fired *ESPCC* serving the *EASF* exhaust. In addition, a fabric filter *baghouse* serves the *melt shop* exhaust, which includes the *EASF* and *LMF* as well as the ladle and *tundish* drying and preheating operations.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

In determining *BACT* for NSSA, the facility was treated as if it had not yet been constructed. Therefore, retrofit costs were not taken into account in any of the economic determinations. As provided in EPA guidance, the applicant was required to submit a demonstration that all pollutants emitted in *significant* amounts would comply with *BACT*. The Department conducted a thorough review of the information provided by the applicant and supplemented this information through independent research. The information that the Department considered included manufacturer's data, data obtained from EPA's *RACT/BACT/LAER Clearinghouse (RBLC)* (<http://cfpub1.epa.gov/rblc/htm/bl02.cfm>) and reports on current environmental developments. On several occasions, the Department required the applicant to submit additional analyses, either to correct deficiencies or to take into account recent developments in the industry.

Melt Shop

The emission units in the *melt shop* include the *EASF*, the *LMF*, and the *melt shop* ventilation system. The emitting activities covered by the ventilation system include a natural gas-fired *tundish* dryer, two natural gas-fired *tundish* preheaters, two natural gas-fired ladle dryers, two natural gas-fired ladle preheaters, slag handling, and the exhaust from the continuous casting machine. For each pollutant, the Department considered all available control technologies, and considered application of these technologies both for application to the *EASF* exhaust stream and for application to a combined *melt shop* exhaust stream.

Particulate Matter (PM). The *EASF* exhaust is combined with the exhaust from the *LMF* and the *melt shop* ventilation system, and the *PM* emissions in this combined exhaust stream are controlled using a positive-pressure *baghouse* achieving a *filterable PM* outlet concentration of 0.0018 *grains per dry standard cubic foot (gr/dscf)*. Other available *PM* control technologies include *electrostatic precipitators*, *wet scrubbers*, and *mechanical collectors*. None of these other technologies can achieve higher levels of control than the proposed *baghouse*. The *filterable PM* emission limitation of 0.0018 *gr/dscf* proposed by the applicant is lower than the emission limitations for the best-controlled steel mini-mills currently included in the *RBLC*. The *BACT* determination for total *particulate matter nominally less than 10 micrometers (PM₁₀)*, which includes the *condensable* fraction as well as the *filterable* fraction, is an emission limit of 0.0052 *gr/dscf*, using the same control technology described above. No control option that is more effective than the proposed fabric filter *baghouse* has been identified, and no more stringent limit has been achieved in practice.

Carbon Monoxide (CO). Emissions from the *EASF* will be controlled using a *DEC* system and an *ESPCC* system. The *DEC* system is a process control option that maximizes *CO* destruction by regulating the amount of air introduced into the ductwork. The *ESPCC* system uses a natural gas-fired, air-fuel burner in a vertical, refractory-lined chamber to oxidize *CO* in the furnace exhaust. In addition to the proposed control option, the

Department evaluated the use of a *catalytic oxidizer*, *direct-flame thermal oxidizer*, *recuperative thermal oxidizer*, and *regenerative thermal oxidizer* for *CO* control. These controls were considered both for application to the combined *melt shop* configuration, as proposed, and for application to the *EASF* exhaust separately. The results of this evaluation are as follows:

- Control of *CO* in the *EASF* exhaust using a *catalytic oxidizer* is technically infeasible.
- All types of *thermal oxidizers* for *CO* control in the combined *melt shop* exhaust are economically infeasible.
- *Thermal oxidizers* for *CO* control in the isolated *EASF* exhaust stream could be accomplished only with a separate *baghouse* on the *EASF* exhaust (upstream of the thermal oxidizer). Under this configuration, the *PM* emissions from the *melt shop* ventilation system exhaust could not be economically controlled. This would result in an additional 600 tons per year of *PM* emissions, which represents an unacceptable environmental impact.

The Department also noted that other steel mini-mill facilities using conventional *EAFs* achieve substantially lower *CO* emissions, in terms of mass emissions per ton of steel produced, than that proposed for the *EASF*. The applicant demonstrated that the higher emissions for the *EASF* are due to inherent process differences, as the furnace exhaust gases are used to pre-heat the scrap charge. The applicant also demonstrated that a similarly-sized, conventional *EAF* cannot be used at the Kingman site, due to insufficient capacity in the local power grid, and therefore a conventional *EAF* is not a feasible control alternative for consideration in the *CO BACT* analysis.

Nitrogen Oxide (NO_x). Emissions from the *melt shop* exhaust will be minimized by:

- Use of natural gas-fired oxy-fuel burners in the *EASF* (which minimizes nitrogen levels in the furnace by supplying oxygen instead of air);
- Use of natural gas-fired air-fuel burners in the *ESPCC* (which minimizes NO_x formation by limiting the flame temperatures); and
- Adherence to good operating practices, including the minimization of air infiltration into the *EASF* and *LMF*.

In addition to the proposed control option, the Department evaluated other process controls and end-of-pipe controls for the *EASF* exhaust. The applicant demonstrated that combustion controls such as low- NO_x burners, staged combustion and flue gas recirculation are technically infeasible due to the NO_x formation mechanism in the *EASF*. The applicant also

demonstrated that *selective catalytic reduction (SCR)* and *selective non-catalytic reduction (SNCR)* are technically infeasible. SCR cannot be applied to the *melt shop* exhaust due to the extreme variability in exhaust stream temperature, flow rate and NO_x concentration and due to the potential for catalyst fouling from *PM* and trace metals in the exhaust stream. Similarly, SNCR cannot be applied to the *melt shop* exhaust due to the extreme variability in exhaust stream temperature, flow rate, and NO_x concentration.

Volatile Organic Compounds (VOCs). Emissions from the *EASF* will be controlled through adherence to a scrap management program, and the use of a *DEC system* and an *ESPCC* system. As noted previously in the discussion of *CO* control options, the Department evaluated a *catalytic oxidizer* and *thermal oxidizer*, and determined that these add-on controls, regardless of exhaust configuration, are technically or economically infeasible. In addition, the applicant also evaluated the use of higher-quality scrap and hot-briquetted iron. These alternative raw materials contribute less *VOC* to the process gases, but at a substantially increased cost relative to the low-grade scrap proposed to be utilized.

The Department also noted that other steel mini-mill facilities using conventional *EAFs* and/or producing higher-quality steel products achieve substantially lower *VOC* emissions, in terms of mass emissions per ton of steel produced, than that proposed for the *EASF*. The applicant demonstrated that the higher emissions for the *EASF* are due to inherent process differences. As was previously noted, a conventional *EAF* cannot be used at the Kingman site due to insufficient capacity in the local power grid.

Lead. Emissions from the *EASF* and from the combined *melt shop* exhaust will be controlled by maintaining strict controls on the raw materials fed to the *EASF* through the use of a scrap management plan, and by using a *baghouse* to control *PM* emissions from the *melt shop*. No other available control options were identified.

Reheat Furnace

The *reheat furnace* heats steel billets to the proper temperature for malleability for rolling into finished products. The *reheat furnace* can be either “hot-charged,” with steel billets coming directly from the continuous casting machine, or “cold-charged,” with billets having been stored since casting. This furnace is a walking-beam type furnace with five heating zones and the capability to charge and discharge billets through its side by means of roller tables. It fires exclusively natural gas, using low- NO_x burners and flue gas recirculation, with a maximum heat input of 74.0 million Btu per hour.

Particulate Matter (PM). For this source, *PM* is conservatively assumed to be equivalent to PM_{10} , so a combined *BACT* analysis is appropriate. Emissions from the *reheat furnace* will be minimized by the exclusive use of natural gas as fuel. The sole *PM* formation mechanism in the *reheat furnace* is the combustion of fuel and that the steel reheating process is not a source of *PM* emissions.

The Department reviewed recent permitting decisions for similar facilities and confirmed that no other technically feasible control options have been identified. Three other facilities with more stringent numerical *PM* emission limits than that proposed by the applicant were identified. Of these three, only one (IPSCO) required that sulfur-free natural gas be combusted which is likely more stringent than the applicant's proposed control option. Sulfur-free natural gas is not available in Arizona, so this control option is not technically feasible. The other two (Birmingham Steel and Qualitech Steel) emission limits, while numerically lower than that proposed for NSSA, are based on the same control option and do not require any compliance testing in contrast to the permit for NSSA which does require compliance testing. Because no compliance tests are required in the other permits, the emission limits cannot be demonstrated to be as stringent as those required in the NSSA permit.

Carbon Monoxide (CO). Emissions from the *reheat furnace* will be minimized through adherence to good combustion practices and the exclusive use of natural gas as fuel. In addition to the proposed control option, the applicant identified a *catalytic oxidizer*, *regenerative thermal oxidizer*, and *recuperative thermal oxidizer* as technically feasible control options. The applicant provided data showing that each of these control options would result in unreasonable economic impacts for the subject *reheat furnace*. The Department reviewed recent permitting decisions for similar facilities and confirmed that no similar facility has been required to use a control technology substantially different than the proposed control option, or to achieve a more stringent emission limit than that proposed.

Nitrogen Oxide (NO_x). Emissions from the *reheat furnace* will be minimized through the use of low-NO_x burners, flue gas recirculation, and the exclusive use of natural gas as fuel. In addition to the control option proposed as *BACT*, the Department identified and evaluated *SCR* and *SNCR* as available control technologies. The applicant demonstrated that *SNCR* is technically infeasible for application to the *reheat furnace* because the unit employs direct heat transfer, whereas *SNCR* is designed for use with boilers and other units employing indirect heat transfer. For *SNCR* to be used in the *reheat furnace*, the necessary reagent could not be injected without contacting the steel being heated, and process considerations would prohibit the re-design of the furnace chamber to allow sufficient gas residence time for NO_x reduction reactions to occur.

Only one similar facility has been required to achieve a more stringent NO_x emission limit than that proposed herein. This facility, Beta Steel in Portage, Indiana (entry IN-0040 in the *RBLC*), is required to use *SCR* to achieve 0.0147 pounds NO_x per million Btu heat input. The facility has not yet demonstrated compliance with this emission limit due to unresolved performance issues. The Department recognizes that, even if the performance issues can be resolved, the level of NO_x control that *SCR* can achieve on a *reheat furnace* is somewhat uncertain.

Notwithstanding this uncertainty, the Department required that the applicant obtain a price quote from Huntington Environmental Systems, Inc., the vendor that supplied the *SCR* system for Beta Steel installation. Huntington was viewed as the best-qualified vendor to provide such a quote for a *reheat furnace*, as they have been working closely with Beta Steel and with the Indiana Department of Environmental Management to implement design and operational changes to effectively control *NO_x* emissions from the Beta Steel *reheat furnace*. Price quotations were provided for *SCR*-based control systems designed to achieve overall *NO_x* emission factors of 0.01 pounds and 0.03 pounds per million Btu heat input. These two emission factors are for systems with relatively minor design differences, and are representative of the range of control efficiencies achievable with *SCR* systems. Both systems are designed to be used in conjunction with low-*NO_x* burners and flue gas recirculation. Based on the quotations received from Huntington, the Department determined that the control cost-effectiveness with *SCR* is approximately \$10,000 per ton of incremental *NO_x* reduction beyond what is achievable with low-*NO_x* burners and flue gas recirculation. The Department determined that this represents an unreasonable economic impact on the *reheat furnace* installation, even without taking into consideration the apparent performance issues associated with such installation.

Volatile Organic Compounds (VOCs). Emissions from the *reheat furnace* will be minimized through adherence to good combustion practices and the exclusive use of natural gas as fuel. In addition to the control option proposed as *BACT*, the applicant identified a *catalytic oxidizer*, *regenerative thermal oxidizer*, and *recuperative thermal oxidizer* as technically feasible control options. The applicant provided data showing that each of these control options would result in unreasonable economic impacts for the subject *reheat furnace*. The Department reviewed recent permitting decisions for similar facilities and confirmed that no similar facility has been required to use a control technology substantially different than the proposed control option, or to achieve a more stringent emission limit than that proposed.

Wet Cooling Towers

The applicant's facility includes two mechanical-draft *wet cooling towers*. The *PM* formation mechanism in *wet cooling towers* is due to droplets of cooling water that escape, or "drift," from the tower. These water droplets contain some quantity of suspended and dissolved solids. As the water droplet evaporates, the dissolved and suspended solids become airborne *PM*.

Particulate Matter (PM). Emissions from each of these *wet cooling towers* will be minimized through management of the solids content in the cooling water as limited in the permit, and through the use of high-efficiency *drift eliminators*. Compliance with the solids content limit will be determined through monitoring which is also required in the permit. The Department reviewed recent permitting decisions for other facilities with *wet cooling towers*, and no control options other than high-efficiency *drift eliminators* were identified.

In addition to the control option proposed as *BACT*, the Department identified and evaluated

dry cooling towers as an available control option. These *dry cooling towers* achieve heat dissipation by circulating the cooling water inside tubes or fins, with no contact between the water and the outside air. Because there is no contact between the cooling water and the outside air, there is no drift and there are zero emissions. *Dry cooling towers* have been used by several power plants, including the Otay Mesa Generating Project in California, for cooling and condensing of steam. However, the performance of *dry cooling towers* is limited by the ambient temperature. The design ambient temperature in Kingman is 100 °F. The relative dryness of the atmosphere in the Kingman area cannot be used to any advantage with a *dry cooling tower*, but it can be used to significant advantage with a *wet cooling tower*. The design cooling water temperature for the applicant's facility is 95 °F, which could not be achieved using *dry cooling towers*.

Fugitive Dust from Paved and Unpaved Roads

The applicant's facility includes paved and unpaved roadways upon which automobiles and trucks will travel. The applicant has proposed to implement all available dust control measures for these roadways, including the following:

- Posting and enforcing a plant-wide speed limit of 30 miles per hour;
- Vacuuming of paved areas, in a manner designed to ensure capture of the vacuumed material, at least biweekly;
- **Applying a magnesium chloride chemical dust suppressant to unpaved roadways at least bimonthly;** and
- **Watering of unpaved roadways at least daily.**

In addition, the applicant is required to submit to the Department for its approval a dust control plan for unpaved roadways. This plan must include the measures listed above, and other measures sufficient to ensure an overall 85 percent control level for unpaved roadway *PM* emissions.

EMISSION IMPACT ANALYSES

PSD regulations under Title I of the Federal Clean Air Act (CAA) and Arizona Administrative Code (A.A.C.) R18-2-406.A(5), and the impacts analysis requirements under those regulations, are applicable to the North Star Steel mini-mill for *PM*₁₀, *NO*_x, *CO*, *ozone* and *lead*. The impacts analysis is designed to protect the *NAAQS* and *PSD* increments.

The *NAAQS* are maximum concentration “ceilings” measured in terms of the total concentration of a pollutant in the atmosphere. For a new or modified source, compliance with any *NAAQS* is based upon the total estimated air quality, which is the sum of the background concentrations, the estimated ambient impacts of existing sources of air pollution, and the estimated ambient impacts of the applicant’s proposed emissions. A *PSD* increment, on the other hand, is the maximum increase in ambient concentration that is allowed to occur above a baseline concentration for a pollutant. Significant deterioration is said to occur when the amount of new pollution would exceed the applicable *PSD* increment.

Modeling was performed to determine if the source would meet the *PSD Class I area* and *Class II area* increments for *nitrogen dioxide* (NO_2), SO_2 , and PM_{10} and the *NAAQS* for NO_2 , SO_2 , PM_{10} , CO , and *lead*. All modeling was conducted conforming to guidance issued by the Department, the U.S. EPA, and the Federal Land Managers (FLM). The modeled emission inventory differed slightly: the NO_x emission rate representing *BACT* for the *melt shop* baghouse and the PM_{10} emission rates representing *BACT* for the *wet cooling towers* are lower than those included in the initial *PSD* permit application submitted by the applicant and in the modeling analyses. Because higher values were used in the modeling, the predicted ambient impacts presented in this section are slightly overestimated, but the Department does not believe that effect of such overestimation warrants a revised modeling analysis.

Three *PSD* sources were modeled as part of the *NAAQS* inventory: Griffith Energy, LLC (“Griffith”); Mohave Pipeline Operating Company - Topock (“Topock”); and Calpine Southpoint Generating Station (“Southpoint”). These sources were included in the NO_2 , SO_2 , and PM_{10} *PSD* increment analyses and the full *NAAQS* impact analysis.

In addition to the three *PSD* sources, three additional sources were also included in the NO_2 increment analysis: Ford Motor Company, El Paso Natural Gas Company - Hackberry, and Guardian Fiberglass, Inc. These sources have been permitted since the NO_2 baseline date of April 10, 1991. They are within 57 km of NSSA plant and were determined by ADEQ to have the potential for contributing significant impacts within the significant impact area. No other sources were included in the SO_2 and PM_{10} increment analysis.

Mobile sources were considered for inclusion in the *PSD* increment inventory. However, emissions of NO_x from on-road mobile sources have decreased in the vicinity of NSSA with the advent of lower emitting vehicles.

In order to ensure the safety and welfare of the surrounding community is protected, the Department compared the modeled impacts from NSSA and the other surrounding emission sources with the *NAAQS* and *Arizona Ambient Air Quality Guidelines* (*AAAQGs*). The comparisons demonstrated that the maximum predicted concentrations of all pollutants are less than the *NAAQS* and short-term *AAAQG* values with the exception of cadmium which exceeds the annual *AAAQG*. The annual *AAAQG* for cadmium is $0.00029 \text{ } \mu\text{g}/\text{m}^3$, and the maximum model-predicted concentration is $0.000479 \text{ } \mu\text{g}/\text{m}^3$. The *AAAQGs* are considered to be very conservative guidelines because the

potential to emit (PTE) calculations are based on a worst case scenario and the *AAAGs* are based on a 70-year exposure limit.

PUBLIC PARTICIPATION PROCESS

A public notice for the draft proposed permit, including dates and times for a public meeting and hearing, was published in the Kingman Daily Miner and the Mohave Valley Daily News on September 28, 2001, and October 5, 2001. A public meeting was held at the Hualapai Elementary School which is located at 350 Eastern in Kingman, Arizona on October 17, 2001. A public hearing was held at the same location on November 1, 2001. During the public comment period, a request was made for an extension of the comment period by an additional thirty days. In response to this request, ADEQ published a notice in the Kingman Daily Miner and the Mohave Valley Daily News on November 19, 2001, and November 26, 2001, stating that the written comment period would be extended, and that all comments were to be post-marked or received no later than December 1, 2001.

Comments, questions, and objections were received during the public comment period in both verbal and written formats. This summary presents the Department's responses to the issues raised during the public comment period.

Many of the comments addressed below relate to matters that are not directly at issue in this permit proceeding. In particular, a number of comments raise issues relating to the civil and criminal enforcement cases against NSSA. Although the Department is happy to take this opportunity to address these public concerns, these types of comments cannot affect the Department's action on the pending permit application.

Please note that "C" represents the question or comment, and "R" represents the Department's response.

- C: As the one here in Kingman, I find it interesting that ADEQ didn't use that knowledge, under your own guidelines, to find out that there was no way they could comply as a minor source polluter to begin with, which would make us not in the situation that we're in right now.**
- R:** The Department relied on statements made by NSSA in their permit application when issuing the *minor source* permit as discussed in the opening summary. Once the Department determined that NSSA's statements were inaccurate, and that the facility was not operating in accordance with its air quality control permit, enforcement action was taken to correct the situation and to discourage this behavior in the future.
- C: This facility has never assured compliance in, record keeping and reporting that comes close to assure compliance.**

Can this company be trusted to comply while producing 40 times as much pollution?

Does ADEQ and Arizona Attorney General's office truly expect to have clear and fully substantiated evidence that this company will perform?

If this company does not feel it necessary to seek the advice of their own environmental department why should we believe that they will be any more diligent with the state now.

There is no evidence that shows they will operate any differently in the future as a major source than they did as a minor source polluter.

R: The Department has evaluated operations at NSSA and has developed a permit which imposes requirements that the company must meet so that the air quality standards will not be exceeded. ADEQ will use three methods to ensure that the plant is operating in compliance with its air quality permit. The first method is through initial and periodic *performance tests* required by the permit. In addition, NSSA is required to install *continuous emission monitoring systems (CEMS)* for SO_2 , NO_x , and CO . The *CEMS* data would be equivalent to the results of a *performance test* and would carry the same weight.

The second method is through the submittal of semi-annual *compliance certifications* and *certifications of truth, accuracy, and completeness* which are required by the permit. A *Class II (minor source) permit* only requires annual *compliance certifications*. These certifications must be signed by NSSA's designated *responsible official*, and are reviewed by the Air Quality Division (AQD) staff to ensure that the source is in compliance with all applicable requirements through inspections and reviewing the company's records. If, at any time, the certification is found to be incorrect, the *responsible official* could be criminally liable for perjury.

The third method is through *unannounced inspections* of the plant which allow Department personnel to inspect equipment, observe operations, and review the facility's on-site records. Citizen complaints are also utilized by ADEQ to assist in compliance efforts. ADEQ has a policy of responding to citizen complaints as soon as possible, but no later than five working days of receiving them. Typically, when citizen complaints are received by ADEQ, an inspector conducts an *unannounced inspection* and thoroughly reviews the records at the facility. Upon completion of the investigation, the inspector will contact the complainant (if they wish to be contacted) and inform them of the results of the investigation.

Concerned citizens can submit their complaints to the Department by contacting the Compliance Section of the AQD at (602) 207-2301, or toll-free within Arizona at (800) 234-5677, extension 2301.

C: They also did not present evidence that they had performed BACT as a minor source

and as such can not be permitted to pollute as a major source until evidence otherwise is proven.

To this date there has not been presented at any public meeting or clearly presented in their permit application that in the past as a minor source polluter that they fully attempted to use and accomplish BACT or that as a major source that they will.

R: An analysis of the *BACT* is required for new *major sources* or *major modifications*. NSSA represented themselves as a new *minor source* in the original permit application, and were permitted as such. There is no State or Federal requirement that a *minor source* must perform a *BACT* analysis. Now that it has been determined that NSSA is a *major source*, the company has completed a *BACT* analysis as though the facility had not yet been built as described in the opening summary, and will use the equipment that the *BACT* analysis has determined is appropriate.

C: Why not wait to see if they follow through with what responsibilities that a minor source permit allows?

I ask your support in requiring North Star Steel to abide by the requirements of its minor-source permit if and when operations resume and denying any request, now or future, for a major-source permit.

In my opinion, it's not a very hard choice to make - a minor-source permit is preferable to a major-source permit.

I feel that North Star can be a leader by setting an example as a minor polluter.

If North Star Steel can operate at the levels of pollution they promised under the original permit, then they should be permitted to do so. If not they should be refused a permit to operate.

You must deny North Star Steel's request for this major pollution release permit and keep them under your control to see that the emission of these pollutant is what they said when they came to Kingman (very little emission).

There is no information to substantiate their claim, and it is inappropriate to allow this company to pursue a major source pollution permit until they have revealed evidence that they have sincerely met their first obligation of a minor source polluter and a "mini steel mill," as they applied for their original permit and told the community of Mohave County.

I am writing to request that you deny North Star Steel a major source permit and demand that they operate as a minor source under the guidelines and laws initially

agreed upon by them and ADEQ.

As applied for and received permit for a minor emitter - they must be held to that agreement.

I'm against it going to a major source polluter in our community that came in as a minor source, and we'd really like them to work at staying a minor source.

The notion that a major-source permit has "tougher pollution controls" doesn't come close to making up for the increased amounts of pollutants a major-source permit would allow.

Why do they need to be issued a major source permit?

R: If the Department could have issued a *minor source* air quality control permit to NSSA for the operation of its facility, this would have been done. It should be noted that NSSA has demonstrated to the satisfaction of the Department that the steel mill, when operated as designed, cannot remain in compliance with the *minor source* emission limits included in its Installation permit. This is due to the fact that NSSA has the *PTE* more than 100 tons per year of regulated air pollutants. In fact, it is not physically possible for NSSA, or any other steel mini-mill industry, to operate as a *minor source*.

The Department is obligated to issue a *Class I (major source) permit* to a source that meets all legal requirements pertaining to permit issuance. NSSA has demonstrated to the satisfaction of the Department that all legal requirements have been or will be met. The final *Class I permit* meets the criteria for issuance under all applicable laws and regulations including, but not limited to, Arizona laws pertaining to air quality permits (Arizona Revised Statutes (A.R.S.) §§ 49-426, 49-426.01, and 49-427), Arizona regulations pertaining to air quality permits (A.A.C. R18-2, Articles 3 and 4), and federal laws pertaining to air quality permits (CAA, United States Code (U.S.C.) §§ 7401-7671). In other words, the Department has no legal authority to deny issuance of the *Class I permit* on the grounds that the facility is currently operating under a *minor source* permit.

NSSA's submittal of an inaccurate and misleading *minor source* permit application has been addressed by civil and criminal settlements as discussed in the opening summary. The *minor source* permit application and *minor source* permit are not material to the review and issuance of the *Class I (major source) permit*.

C: **How many major source polluters has ADEQ seen begin operations in Arizona as a minor source polluter, only to entwine themselves in a community, so it becomes a tragedy if they are forced to close?**

R: The Department is unaware of any similar situation in Arizona, but does not take this situation lightly. In the case of NSSA, the Department, in conjunction with the Arizona Attorney General, collected the largest environmental civil penalty ever collected by a State without involvement by the EPA. In addition to this civil penalty, NSSA pleaded guilty to two felony counts and was ordered to pay an additional penalty. The message is clear. Arizona is serious about enforcing laws which protect the safety and welfare of the public and the environment.

C: Our regulatory agencies must not approve a major source pollution permit where a company does not communicate the desire to comply. A permit application does not reassure this.

R: The *Class I permit* has provisions that will require that NSSA demonstrate, in several ways, that it will comply with the appropriate State and Federal laws. Under this permit, NSSA is required to prove compliance with emission standards by submitting the results of annual *performance tests* for SO_2 , NO_x , CO , PM_{10} , *VOCs*, and *lead*. In addition, NSSA is required to install, test, and operate *CEMS* to measure the SO_2 , NO_x , CO , and gas flow.

C: The use of a variance to avoid compliance so that a commercial enterprise can operate at greater profit is unacceptable.

R: A variance is defined as authorization to engage in activity that is in contrast to a legal requirement, such as a permit condition. The proposed NSSA permit is not a variance since this *Class I permit* will void and supercede the previous *Class II permit* and is being issued in accordance with legal requirements.

C: Paying a fine for operating without a permit, installing and operating unpermitted equipment, and failing to perform tests in a timely manner is not comforting when air quality and quality of life is concerned.

Thousands of dollars worth of fines don't even come close to compensating us for poor air quality. There is no compensation!

Under the "Clean Air Act" you do not get rewarded with a permit to increase your pollution output after you have violated the criteria as a minor source.

They were granted a minor source permit and now found guilty of not being able to comply with these boundaries. Why give them a slap on the wrist and then more freedom?

R: The penalties collected from NSSA amount to more than a slap on the wrist. The civil penalty collected was meant to recover all economic advantage realized from non-compliance, and serve as a deterrent from committing future violations. NSSA paid a \$5

million civil penalty and conducted a *supplemental environmental project (SEP)* by paying \$2.75 million to the Mohave County Supplemental Environmental Project Revocable Trust for paving of dirt roads to control dust in the Golden Valley area. NSSA also presented a verbal statement of apology to the Mohave County Board of Supervisors and the Kingman City Council, and published this public apology in the Kingman Daily Miner. This is the largest environmental civil penalty ever collected by a State without the involvement of the United States Environmental Protection Agency (USEPA), and the largest civil penalty collected by any agency, including the USEPA, for air quality violations at a single facility.

In addition, NSSA paid a \$3.2 million criminal penalty, contributed \$425,000 to establish environmental enforcement training, reimbursed the Attorney General's Office \$250,000 for fees and the cost of the investigation, and contributed \$125,000 to a fund to pay for paving dirt roads within the City of Kingman. This case involved the largest clean air penalty ever levied against a company in Arizona history.

The monitoring and testing required by the *Class I permit* is much more stringent than the monitoring and testing required by the *Class II permit*. The *Class I permit* requires NSSA to demonstrate that the company is in compliance with Federal and State regulations as a *major source* polluter. Therefore, the *Class I permit* issued to NSSA is not a reward, but a way to assure that the company is in compliance with the emissions standards that apply to them.

C: Certainly the monies from both the civil and criminal cases could be used for health; air modeling and regional grids based on urban areas since we are the ones affected by this company's criminal activity.

Walnut Creek Estates is 1½-2 miles from North Star. When they agreed to pay Golden Valley for street paving as part of the settlement, they are going 15-20 miles from North Star and overlooking us. We are the ones here in Walnut Creek who have seen the pollution coming out of North Star Steel's stacks every morning for the past few years.

Some of the mitigation concepts like – could be a trust fund that you could set up that could go towards getting the information to the public.

Why was not some of the fine used for people that it injured their breathing? Instead of roads in Golden Valley.

R: SEPs are environmentally beneficial projects which a responsible party agrees to undertake in settlement of a penalty action, but which the responsible party is not otherwise legally required to perform. When proposing a SEP, the responsible party must demonstrate to ADEQ that the SEP improves, protects, or reduces a risk to public health, or the environment at large. While in some cases a SEP may provide the responsible party with certain benefits, there must be no doubt that the project primarily benefits public health or the environment.

As a result, the project or activity must have been initiated after identification of the violation by ADEQ, and must not otherwise be required by and federal, state, or local law or regulation. Furthermore, *SEPs* cannot include corrective actions that the responsible party must perform to resolve the violations. The State believes that the *SEP* dedicating money for the paving of roads in Golden Valley meets this criteria.

C: Why the fast track?

The current accelerated permit process has not allowed the community concerns to be heard fairly.

R: In this case, the *Accelerated Permit Processing Program (AP3)* was not used to accelerate the processing of NSSA's air quality control permit. The Department requested that NSSA choose the accelerated program so that the Department could benefit from a qualified consultant with expertise in the steel making process.

In accordance with the *Licensing Time Frames (LTF)*, the Department has 180 business days, or approximately 8 ½ months, to process an accelerated *Class I, Prevention of Significant Deterioration (PSD) permit*. The Department has 292 business days, or approximately 14 months, to process a non-accelerated *Class I, PSD permit*. In the case of NSSA, the Department received the application on January 7, 1999. As a result of the Department's insistence on a rigorous *BACT* analysis and requests for additional information and analysis from NSSA, the final permit is being issued over three years later.

Please also note that the time frame allowed for public comments on a proposed permit does not change even if the permit application is processed in an accelerated manner. In the case of NSSA, the public comment period was also extended an additional thirty days after ADEQ received a request from concerned citizens.

C: We firmly believe this permit application is "legally defective," and violates legal requirements.

R: The permit application submitted by NSSA is not "legally defective" and does satisfy legal requirements. It was deemed complete after undergoing a thorough *completeness review* by the Department because it included all information required by A.A.C. R18-2-304.E.

In addition, as was discussed in the opening summary, NSSA was required to submit a demonstration that all pollutants emitted in *significant* amounts would comply with *BACT*. The Department conducted a thorough review of the information provided by the applicant and supplemented this information through independent research. The information that the Department considered included manufacturer's data, data obtained from the USEPA's *RBLC* and reports on current environmental developments. On several occasions, the Department required the applicant to submit additional analyses, either to correct deficiencies or to take into account recent developments in the industry.

C: We believe you are required to deny this major source application.

R: The *Class I permit* contains all items required by A.R.S. § 49-426.I and NSSA has met all conditions required by State and Federal law for issuance of an air quality control permit. Therefore, the AQD has no legal grounds for denying this permit.

C: Do per unit (tons of steel) emissions typically increase with higher production?

R: “Per unit” emissions do not typically increase with higher production. With increased production, the “per unit” emissions will typically remain constant or decrease while the total amount of emissions will increase. In the case of NSSA, conservative estimates of the “per unit” emissions were used to calculate the *PTE*. Actual “per unit” emissions will vary based on the operating efficiency of the facility.

C: Thank you for looking after our concerns and if you think it right to give North Star the major-source permit, please see that the best pollution controls will be used.

The claim that as a major source polluter their emissions would be under stringent emission limitations by requiring the use of BACT and strict modeling to prevent significant deterioration of air quality has not been clearly proven and must be.

R: As described in detail in the *technical support document (TSD)* and in the opening summary, the permit includes emission limitations and other requirements that represent *BACT* for all emission units at the facility. The emission limitations included in the permit, for each emission unit and for each pollutant regulated under the CAA, will result in the maximum degree of reduction in emissions, taking into account energy, environmental, and economic impacts. In addition, the emission limitations in the final permit are sufficient to prevent the significant deterioration of air quality, consistent with A.A.C. R18-2-406.A.5 and R18-2-407.

C: In addition, the costs of such controls at North Star’s existing facility might be higher than at other new facilities because of retrofit costs, and those costs must not be considered in eliminating options from the BACT analysis.

Its BACT analysis must be determined as if for a new source which has not yet been constructed.

R: Costs associated with retrofitting air pollution control systems into the existing equipment were specifically excluded from the determination of whether those systems were economically feasible. Consistent with A.A.C. R18-2-406.H, the requirements of the *PSD* program, including the requirement to implement *BACT*, were applied as if the facility had not yet been constructed. This aspect of the *BACT* determination procedure was critical in the Department’s decision to require a new *ESPCC* for control of CO emissions.

C: Is there a baghouse system, because the one that's on there which was the newest technology at the time, that's the baghouse that's still going to be on there. It's going to have a leak mechanism on there now so it doesn't leak out, but let's look at finding something that is better because when that started, perhaps there's better technology to help bring that to a minor source polluter.

R: Consistent with A.A.C. R18-2-406.H, the requirements of the *PSD* program, including the requirement to implement *BACT*, were applied as if the facility had not yet been constructed. A fabric filter *baghouse* achieving a *filterable PM* outlet emission concentration of 0.0018 grains per dry standard cubic foot (*gr/dscf*) was determined by the Department to be *BACT* as discussed in the opening summary. The existence of a fabric filter *baghouse* at the facility was not a consideration in making this determination.

As noted in the *TSD* accompanying the permit, no steel mini-mills listed in USEPA's *RBLC* use any *PM* control device other than a fabric filter *baghouse*, and none achieves a *PM* emission limit that is more stringent than that which is included in the final *Class I permit* for *NSSA*.

C: In justifying the exclusion of better control technologies based on costs, ADEQ fails to provide any information to show that the costs were unreasonable when compared to the cost of similar controls at other steel mini-mills.

R: Four control technologies were considered, but rejected from the *BACT* determination for *NSSA* based on a careful analysis of the feasibility and cost effectiveness of each technology. These technologies included: a *thermal oxidizer* for control of *CO* emissions from the *melt shop*; *SCR* for control of *NO_x* emissions from the *reheat furnace*; substitution of hot briquetted iron for steel scrap as a raw material in order to reduce *VOC* emissions from the *melt shop*; and high-efficiency *drift eliminators* for control of *PM* emissions from the indirect cooling water *wet cooling tower*. The first two of these technologies are not in use at any steel mini-mill identified by the Department, so no comparison of costs within the industrial category is possible. The Department made its determination that these two technologies are economically unreasonable based on the costs of using similar control technologies in other industries.

Similarly, the Department made its determination regarding raw material substitution (hot briquetted iron) based on the relative cost as compared to *VOC* control technologies used in a variety of source categories and concluded that \$300,000 per ton of *VOC* emission reduction is unreasonable in any industrial category. Please also note that hot briquetted iron is used as a raw material in steel mini-mills that produce a lower-grade steel product than does *NSSA*. This raw material substitution is necessitated by product specification requirements and is not implemented as a *VOC* emission reduction measure.

Finally, the Department made its determination regarding high-efficiency *drift eliminators* based on the relative cost as compared to *PM* control technologies used in a variety of source categories, and concluded that \$6,400 per ton of *PM* emission reduction is unreasonable for a steel mini-mill. The Department is not aware of any steel mini-mill that has been required to install high-efficiency *drift eliminators* at a cost similar to that which would be incurred at NSSA.

C: Is this North Star Steel plant as clean as its recently refurbished Youngstown, Ohio operation?

R: The emission limitations included in the final *Class I permit* for NSSA are generally more stringent than those in the operating permit for comparable equipment at North Star Steel Ohio (NSSO) (Facility ID 02-50-11-0625, issued by the Ohio Environmental Protection Agency on July 27, 2001). For example, the NSSO *melt shop* emission limit for *filterable PM* is 0.0032 *gr/dscf*; the NSSA limit is 0.0018 *gr/dscf*. The NSSO *reheat furnace NO_x* emission limit is 0.15 pound per million British Thermal Units (lb/MMBtu) heat input; the NSSA limit is 0.10 lb/MMBtu heat input.

The Department recognizes that the NSSO melt shop emission limit for *CO* is numerically lower than the corresponding NSSA limit due to inherent differences between the *EAFs* used at these facilities. Under its authority in requiring *BACT*, including the consideration of inherently lower-polluting processes, the Department evaluated the use of a conventional *EAF* at the NSSA Kingman site. Based on this evaluation, as described in the *TSD*, the Department concluded that a similarly-sized, conventional *EAF* cannot be used at the Kingman site, due to insufficient capacity in the local power grid. Therefore, a conventional *EAF* was not a feasible control alternative for further consideration in the *CO BACT* analysis for NSSA.

C: EPA BACT guidance also requires that inherently lower emitting processes or practices must be considered in determining BACT. Thus, the BACT analysis for North Star must be significantly revised to examine lower emitting processes, including redesign of the facility if necessary, to meet the best control technology and emission limits currently being met by other similar sources.

R: The comment is incorrect. First, the Department implements a *PSD* program (including the associated *BACT* requirement) that has been approved by the USEPA. Guidance issued by the USEPA pertaining to the implementation of the *BACT* requirement does not impose any requirements; instead, guidance is to be used by the Department at its discretion. Second, even the guidance issued by the USEPA pertaining to the implementation of the *BACT* requirement does not require the consideration of any lower-emitting processes or practices that would involve the use of alternative raw materials or the production of alternative products. (See, for example, USEPA's "New Source Review Workshop Manual", page B.13, which states: "Historically, the USEPA has not considered the *BACT* requirement as

a means to redefine the design of the source when considering available control alternatives.”)

Nonetheless, inherently lower-emitting processes that do not constitute fundamental redefinition of the source were considered by the Department in making its *BACT* determination for NSSA. Several of these, such as paving of roads subject to vehicular traffic and use of natural gas exclusively as fuel in the *reheat furnace*, are incorporated into the final *Class I permit*.

Two inherently lower-emitting processes were considered as control options and were eliminated from consideration. One of these, substitution of hot briquetted iron for steel scrap as a raw material in order to reduce *VOC* emissions from the *melt shop*, was eliminated because it is economically unreasonable. The Department concluded that the cost of this control option (\$300,000 per ton of *VOC* emission reduction) is unreasonable in any industrial category. The other, substitution of a conventional *EAF* for the *EASF*, was eliminated because it is technically infeasible. The Department evaluated the use of a similarly-sized, conventional *EAF* and determined that one cannot be used at the Kingman site due to insufficient capacity in the local power grid.

- C: ADEQ only reviewed the emission limits required at other similar sources and apparently did not set North Star’s emission limits based on the control effectiveness of the selected control technologies. The ADEQ must justify the emission limits set as BACT by showing that the emission limits reflect the best control efficiencies achieved in practice by the required control equipment.**
- R: The comment is incorrect. The *BACT* emission limits in the final *Class I permit* were set based on the Department’s analysis of available control technologies and the maximum degree of emission reduction achievable with those technologies as discussed in the opening summary. One component of this analysis is a review of similar sources using similar air pollution control technologies. In those few instances where other steel mini-mills were found by the Department to be achieving emission levels that are more stringent than those proposed by NSSA as *BACT* in its permit application, the Department required NSSA to demonstrate source-specific technical considerations or economic, environmental, or energy impacts that justify establishing a less stringent emission limit. This approach is consistent with guidance issued by the USEPA pertaining to the implementation of the *BACT* requirement.

See, for example, the USEPA's "New Source Review Workshop Manual", page B.24, which states: "Manufacturer's data, engineering estimates and the experience of other sources provide the basis for determining achievable limits. Consequently, in assessing the capability of the control alternative, latitude exists to consider any special circumstances pertinent to the specific source under review, or regarding the prior application of the control alternative. However, the basis for choosing the alternate level (or range) of control in the *BACT* analysis must be documented in the application. In the absence of a showing of differences between the proposed source and previously permitted sources achieving lower emissions limits, the permit agency should conclude that the lower emissions limit is representative for that control alternative."

C: I would ask that you look at the controls and the models that you are using. Make sure they are up to date since the time that there was the permit violation; that you look at the Arizona Department of Health Services and the Epidemiology Study on Health; look in to OSHA and find out what you've got there, and also workmen's compensation.

R: The emission control systems are definitely up to date, since the company was subjected to a thorough *BACT* analysis. The *BACT* analysis is never considered to be final until the time of permit issuance. If at any time during the permitting process, a lower emission limit or a new control technology is introduced to the industry, then the company must evaluate these changes with respect to their facility.

The air quality models employed to estimate concentrations of air pollutants outside the facility are also the standard regulatory models employed today. NSSA submitted a modeling protocol to the Department for review prior to modeling the *PTE*. During its review, the Department ensured that the models that were being used were all USEPA approved models.

With regards to the Arizona Department of Health Services (ADHS) and the epidemiology study on health, the Department compared the modeled impacts with the *AAAQGs*. These *AAAQGs* were developed by ADHS using various studies to protect the most respiratorily sensitive elements of the population, especially the very old and very young. The comparisons demonstrated that the maximum predicted concentrations of all pollutants are less than the short-term *AAAQG* values with the exception of cadmium which exceeds the annual *AAAQG*. The annual *AAAQG* for cadmium is 0.00029 micrograms per cubic meter (F g/m^3), and the maximum model-predicted concentration is 0.000479 F g/m^3 . The *AAAQGs* are considered to be very conservative guidelines because the *PTE* calculations are based on a worst case scenario and the *AAAQGs* are based on a 70-year exposure limit.

Finally, while the Occupational Safety and Health Administration (OSHA) and workmen's compensation speak to the health of the workers within the facility, the AQD's enabling legislation directs its activities towards protecting the ambient air – that is, air outside

facilities that the public can breathe.

C: I have yet to find any documentation that has tested (modeling) of the air quality and testing of health issues related to those toxins since the plant did the initial modeling in 1993.

R: The AQD files, which are open to the public, contain the following documents about NSSA, all of which include, or consist solely of, air quality modeling studies of the facility.

- ENSR International, “North Star Steel Kingman, AZ, *PSD PM₁₀* Modeling”, electronic files, August 8, 2001;
- ENSR Corporation, “*PSD Permit Application for the North Star Steel Company Mini-Mill North Star Steel Company Kingman, Arizona*”, ENSR document #5000-020-600, December 1998;
- ENSR Corporation, “*Prevention of Significant Deterioration Modeling Protocol for the North Star Steel Kingman, Arizona Plant*”, ENSR document # 5000-020-300, August 1998;
- Applied Environmental Consultants, Inc, “Technical Submittal Application for an Installation Permit for a Steel Mini-Mill Facility at McConnico, Arizona North Star Steel Company”, March 12, 1993;
- Applied Environmental Consultants, Inc, “Technical Submittal Application for an Installation Permit for a Steel Mini-Mill Facility at McConnico, Arizona North Star Steel Company, Attachment 1. “Rationale for Selecting the Emission Release Parameters Used to Model the Ambient Impact of Emissions from the *Melt Shop Baghouse*”, March 12, 1993; and
- Applied Environmental Consultants, Inc, “Technical Submittal Application for an Installation Permit for a Steel Mini-mill Facility at McConnico, Arizona North Star Steel Company, Attachment 2. “Evaluation of Maximum Potential Ambient *SO₂* Concentrations due to Emissions from the North Star Steel Facility”, March 12, 1993.

C: Consideration of the accumulative impacts of air pollution to the Grand Canyon has not been evaluated, especially since a major source polluter has come in after North Star Steel, i.e.: Griffith Power Plant.

The emissions inventory does not appear to have captured all other sources potentially contributing to increment consumption in the area around the mill and in Grand Canyon National Park, such as nearby major sources in southern Nevada and

southeastern California.

This is more important than ever with three major source permits issued in such a close proximity of each other and residential communities. The modeling for all these should be current with air ambient quality since 1999-2000 and based on the cumulative effect of the total pollutants we will be exposed to because of your decisions.

R: The Department did evaluate the cumulative effect of other sources in the vicinity of NSSA. The following sources, which include all *major sources* and principle *minor sources* within 50 kilometers of NSSA, were included in the *PSD* increment analysis:

- Griffith Energy;
- Southpoint;
- Topock Compressor Station;
- Ford Motor Company;
- El Paso Natural Gas Company - Hackberry;
- Guardian Fiberglass Inc.; and
- Traffic on Interstate-40.

As far as a more definitive analysis of the cumulative impacts on the Grand Canyon National Park, increment analyses were conducted for this *Class I area* which assessed the cumulative effect of the emissions at that location. These modeling analyses showed that the total maximum model-predicted concentrations are less than the *NAAQS* and *PSD* increments.

C: ADEQ must require an analysis of all other contributing sources to adequately determine whether North Star's mill will cause or contribute to a violation of the PM_{10} increments.

R: The Department did require an analysis of all other contributing sources when determining whether NSSA would cause a violation of the PM_{10} increment. The *PSD* increment modeling included all the *major sources* and *minor sources* within 50 kilometers of NSSA as discussed in the response to the comment above. Emissions from small area sources, such as unpaved roads, are accounted for in the background concentrations of PM_{10} measured at the NSSA site. Between these monitored PM_{10} concentrations, and the emissions from the seven sources above, the predicted PM_{10} increments include all emission sources.

C: Without considering the impacts of growth in mobile source emissions of NO_x , the modeling analysis cannot be considered as demonstrating North Star's compliance with the *PSD* increments for the surrounding Class II area or for the Class I area of Grand Canyon National Park.

R: The growth from 1991 to 1998 of mobile source emissions was calculated and used in estimating the *PSD Class II area* increments, and the 1998 emissions were also used in the regional haze analysis of the Grand Canyon. The Regional Haze analysis was performed for the current year as required by the *PSD* guidance. Projecting emissions for future years and performing air quality analyses based on these projected emissions is beyond the scope of the *PSD* program.

C: **The modeling analysis was only based on one year of meteorological data from 1993 which is not sufficient to determine whether there will be violations of the PSD increments. One year of meteorological data does not reflect the various weather patterns that occur in the area. If additional on-site data is available, it must be used in the modeling analysis. If not, then data from the Mohave County Airport should be used to supplement the one year of meteorological data used in the modeling analysis.**

The determination of North Star's impact on visibility at the Grand Canyon National Park cannot be considered insignificant without a thorough modeling analysis using five years of meteorological data.

R: The *Class I area PSD* increment, *Class II area PSD* increment, and *Class I area* visibility analyses were performed using one year of on-site meteorological data. A five-year set of on-site data was not available. If the Department were to use five years of wind data from sites lacking the NSSA site directional pattern, such as the Mohave County Airport, it would only result in misdirected impacts.

C: **What will be the zone of maximum impact?**

R: Maximum concentrations are predicted to occur along the process area boundary for all pollutants except the following:

- The maximum concentration for 3-hour SO_2 is 200 meters east of the northeastern process area; and
- The maximum concentration for 8-hour CO is 250 meters east of the northeastern process area (and 100 meters south-southeast of the location of the maximum SO_2 concentration).

Depicted on pages 6-11 of ENSR Corporation's "*PSD Permit Application for the North Star Steel Company Mini-Mill North Star Steel Company Kingman, Arizona*" (ENSR document #5000-020-600, December 1998), this distribution of maximum predicted concentrations shows that the concentrations are well within the *NAAQS*, and that they occur along or quite close to the process area itself.

C: **The National Parks Service and the Hualapai Nation have stated they want to see**

accumulative air quality impact studies done to analyze the impact to the Class I air shed of the Grand Canyon Park and the proposed Class I air shed of the Hualapai Nation. This must be done for this permit as well as any other application this close to these air sheds.

ADEQ should evaluate the extent of the effect of the North Star facility on the air quality in the Grand Canyon and include appropriate permit conditions to ensure that the Class I area is adequately protected.

R: Visibility impact analyses of the *Class I areas*, including the Grand Canyon, were performed. These analyses showed that there would be insignificant impacts on the *Class I areas*. This is also confirmed through review by the FLMs as discussed in the comment below.

With regard to the proposed *Class I area* air shed for the Hualapai Nation, this is currently classified as a *Class II area*. Therefore, the impacts on the air quality in this area have been evaluated using the criteria established for *Class II areas*.

C: If the required consultation with the appropriate federal land manager has not yet occurred, it is necessary that ADEQ stay the Title V permit process until such consultation has been properly effected.

R: The Department did seek consultation with the FLMs with regards to the Class I area impacts analysis for NSSA. On May 24, 1999, the FLMs informed the Department that they had determined that NSSA's modeling analysis made an adequate demonstration that the facility meets the requirements of the PSD program.

As a result of this comment, however, ADEQ reviewed the more recent modeling history of NSSA to determine the extent to which the FLMs had been consulted during the process since their initial review. The FLMs were contacted with regards to the modeling results for the facility up until May 1999, but they did not receive any revised *Class I area* impacts analysis for NSSA which included the apparent increase in PM_{10} emissions due to the inclusion of the *condensable* fraction. With the inclusion of the *condensable* fraction, the predicted *melt shop* PM_{10} emission rate appeared to increase. This apparent increase does not reflect any change in actual emissions, but instead reflects a change in the methodology used to measure and report emissions. The Department re-modeled the *Class I area* impacts for the benefit of the FLMs including the *condensable* fraction, and submitted this revised analysis to the FLMs on January 29, 2002 for review. On April 12, 2002, the FLMs informed the Department that the changes did not affect their earlier determination that NSSA's modeling analysis made an adequate demonstration that the facility meets the requirements of the PSD program.

C: All current research indicates lead exposure has devastating effects on a child's brain

and learning capabilities. Our young people of today have enough to worry about without having to be exposed to lead in the air they breathe. I am no chemist, but the other pollutants that will be emitted do not sound all that healthful either.

We took lead paint out of our homes and play ground equipment but you are letting just one of these companies emit over three tons into our air for our children to ingest. Can you explain that to me, or better yet to your children the logic in that decision?

R: The predicted daily *lead* average of $0.435 \mu\text{g}/\text{m}^3$ in the *TSD* is actually a substantial over-estimate because of the use of the highest daily maximum for the entire year. The potential emissions of *lead* from NSSA amount to 1.34 tons per year, which is below the *NAAQS* for *lead* ($1.5 \mu\text{g}/\text{m}^3$). The *NAAQS* are set limits which protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Therefore, because the maximum potential emissions of lead from the facility are below the *NAAQS*, the safety of the public, including children, is protected.

C: **Have you asked for studies to be done on any accelerated lung diseases in this area?**

R: ADEQ has not requested that any studies be done on any accelerated lung diseases in the area.

C: **Now, I look at North Star Steel every day. I see what comes out of it every day. I see a big green smoke come out of it which I breathe and I can smell it.**

I get very sick while being driven past the plant now.

R: Visible emissions from a steel plant will inevitably occur when the plant is operating. While operations at the plant will no doubt cause some air pollution, the controls in place at the plant, the AQD's compliance efforts, and the predicted concentrations being within the *NAAQS* still ensure an overall healthy airshed.

Any questionable emissions from the facility should be reported to the Department so that an investigation can be conducted. Concerned citizens can submit their complaints to the Department by contacting the Compliance Section of the AQD at (602) 207-2301, or toll-free within Arizona at (800) 234-5677, extension 2301.

C: **Yes, not every citizen in this county or this city would get ill from ten major source polluters, but there are a large majority of people whose systems, immune systems, can be compromised. We're not all built alike and never will be.**

R: In order to ensure the safety and welfare of the surrounding community is protected, the Department compared the modeled impacts from NSSA and the other surrounding emission sources with the *NAAQS* and *AAQGs*. The *NAAQS* are limits which have been set in order

to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.

The *AAQGs* were developed by ADHS using various studies to protect the most respiratorily sensitive elements of the population, especially the very old and very young. The comparisons demonstrated that the maximum predicted concentrations of all pollutants are less than the *NAAQS* and the short-term *AAQG* values with the exception of cadmium which exceeds the annual *AAQG*. The annual *AAQG* for cadmium is $0.00029 \text{ } \mu\text{g}/\text{m}^3$, and the maximum model-predicted concentration is $0.000479 \text{ } \mu\text{g}/\text{m}^3$. The *AAQGs* are considered to be very conservative guidelines because the *PTE* calculations are based on a worst case scenario and the *AAQGs* are based on a 70-year exposure limit.

C: Where else in the state of Arizona in the recent past or present have you allowed such poor planning of the health issues that citizens will face because of these decisions?

Where else have you put three major sources next to thriving residential communities where retirees migrate for health, warmth, and clean air?

R: ADEQ has no jurisdiction over where companies build their plants. Although the Department may grant an air quality control permit to an individual source, the zoning and siting decisions for the area in which the source wishes to operate are made by planning and zoning authorities of local government. While ADEQ recognizes the concerns over the development of industry in the Kingman area, the agency's jurisdiction is limited to air quality related issues.

The *PSD* program is designed to prevent new *major sources*, such as *NSSA*, or *major modifications* to existing *major sources*, from "deteriorating" the regional ambient air quality beyond a limited amount (or "increment"). As other *PSD* sources are permitted, each must limit its impact on ambient air quality so as not to exceed the remaining increment. Once the full increment is consumed in an area, no further sources are permitted until emissions in the area are reduced. The increment cap ensures that the area will not exceed the air quality standards and that regional ambient air quality will not be impaired. Even if the available increments for each subject pollutant were used up, the area would still have air quality that meets the *NAAQS*.

C: Our Mohave County general plan states clearly that we are to "maintain or improve our air quality." This application does not comply with the intent of our General Plan, which is required by Arizona law.

R: The Department has only reviewed the air quality impacts from the facility. Other issues covered by the Mohave County General Plan are not under the jurisdiction of the AQD.

C: North Star did not provide any analysis of impacts on flora and fauna, including the

three sensitive species in the area identified by the Arizona Department of Game and Fish: the Arizona necklace, the greater Western mastiff bat, and the Sonoran desert tortoise. The secondary NAAQS were not designed to ensure protection of sensitive species, and North Star's modeled compliance with the NAAQS, based on an insufficient amount of meteorological data, cannot be considered as proof of no adverse impact on these sensitive species. North Star must be required to determine whether its activities will adverse impact these sensitive species.

- R: NSSA stated in their permit application that the United States Fish and Wildlife Service (USFWS) and the Arizona Game and Fish Department (AGFD) had been contacted regarding the existence of sensitive species in the area. Three sensitive species were identified which include one plant, the Arizona necklace, and two animals, the greater Western mastiff bat and the Sonoran desert tortoise. ADEQ recently contacted the AGFD to determine if the list of species had changed since the application submittal in 1998. The AGFD now acknowledges five species as being sensitive including those three mentioned above, the golden eagle, and the Western burrowing owl. Of the five species, none are listed as proposed or actual endangered species.

Common practice in considering new source impacts on sensitive species has been to apply the *secondary NAAQS* to the predicted concentrations of pollutants in the range of the species. In the case of NSSA, these secondary standards are met at all points, with maximum concentrations being predicted along the facility's western boundary near I-40, with rapidly diminishing concentrations east into the higher terrain where these species are presumed to be more abundant.

- C: **Only a credible EIS, "environmental impact statement," can reveal the significant impact to the environment. We believe it is legally mandatory and should be done in the interest of environmental justice and for the protection of all future generations.**

Is there such a thing as a mini EIS that does an evaluation?

I personally object to the circumvention of the process of providing an environmental impact statement, which is an established and responsible means used by the citizens of the United States of America to become informed about the effects imposed on their quality of life.

- R: Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA) requires that federal agencies prepare detailed *environmental impact statements (EIS)* on proposals for legislation and other major federal actions significantly affecting the quality of the human environment. The Department does not have delegated authority to implement the requirements of NEPA.

- C: **The opacity limits imposed in the permit and which represent BACT include**

exemptions for startup and shut down. As stated by ADEQ in its Technical Support Document for the draft permit, BACT emission limits must be met on a continuous basis. Thus, all exemptions from meeting the BACT limits must be deleted.

- R: The comment is incorrect. The emission limitations and standards included in the final *Class I permit*, taken as a whole, represent *BACT* based on the Department's analysis of available control technologies and the maximum degree of emission reduction achievable with those technologies. The permit does not provide any exemptions from complying with *BACT*. For each emission limitation or standard that represents *BACT*, the permit requires that the source remain in continual compliance during the periods when that emission limitation or standard is applicable, based on the expressed averaging time.

The inclusion of certain permit terms that do not apply during periods of *startup*, *shutdown*, and *malfunction* is a necessary, regular, and customary practice. Each *BACT* emission limit must be set at a level that represents the maximum degree of emission reduction and that is achievable on a continual basis. Compliance with stringent *opacity* standards, such as 3 percent *opacity* of visible emissions from the *melt shop baghouse*, cannot be assured on a continual basis during periods of *startup*, *shutdown*, and *malfunction*. If the cited exception were deleted from the permit, the *opacity* standard would have to be set at a much higher level, such that continual compliance without any exceptions could be assured. Therefore, the overall environmental protection would be lessened because there would be more pollution all of the time rather than for only a short period of time.

It should be noted that *opacity* is not a pollutant, but rather an indicator. The *melt shop opacity* standards included in Specific Condition I.A.1 of the final *Class I permit* are a component of the Department's *BACT* determination for *PM* emissions from the *melt shop*. In addition to these *opacity* standards, the Department's *BACT* determination for *PM* emissions from the *melt shop* is the basis for several other permit terms, including the *PM* emission rate limits in Specific Condition I.A.2 of Attachment "B" and the control device operational (work practice) standards in Specific Condition II.A.1 of Attachment "B". These other permit terms do not include exceptions for periods of *startup*, *shutdown*, and *malfunction*.

- C: **Aside from the continuous emission rate monitoring required for SO₂, CO, and NO_x emissions from the melt shop, the draft permit does not include proper monitoring to determine ongoing compliance.**

Although the proposed permit clearly requires some monitoring, the permit does not describe how the monitoring will be recorded and where such records will be available. Such procedures should be specifically described in the permit itself, and not left up to the regulated community to decide.

The permit does not clearly state by when the monitoring results must be reported to

EPA, ADEQ, or other agencies. There does not appear to be any requirement to submit monitoring information on a daily or monthly basis, although federal law requires the facility to submit reports of any required monitoring.

We are not convinced that the monitoring requirements currently contained in the draft permit are sufficient to ensure compliance with the terms and conditions of the permit.

- R: The permit does contain proper monitoring to determine ongoing compliance and describes how the monitoring will be recorded. Section III of Attachment “B” of the permit provides monitoring, record keeping, and reporting requirements for the *melt shop baghouse*, *DEC system*, *reheat furnace*, *wet cooling towers*, other periodic activities, and *CEMS/CERMS* requirements for SO_2 , NO_x , and CO . All records that are maintained at the facility will be available to the Department during both *announced inspections* and *unannounced inspections*. All reports that are submitted to the Department will be available to the public for review at the ADEQ offices at 3033 North Central Avenue in Phoenix, Arizona. Copies of the reports can be requested by contacting the file clerk for the AQD at (602) 207-2246, or toll-free in Arizona at (800) 234-5677, extension 2246.

The permit does clearly state when the monitoring results need to be submitted to ADEQ. Specific Condition III.A of Attachment “B” states:

“At the time the *compliance certifications* required by Section VII of Attachment “A” are submitted, the Permittee shall submit reports of all monitoring activities required by Section III of this Attachment performed in the same six month period as applies to the *compliance certification* period.”

Specific Condition VII.A of Attachment “A” states that *compliance certifications* must be submitted to the Director semiannually. The first *compliance certification* is due no later than May 15th, and will report the status of the facility during the period between October 1st of the previous year and March 31st of the current year. The second *compliance certification* is due no later than November 15th, and will report the status of the facility during the period between April 1st and September 30th of the current year.

The Department is confident that the monitoring, record keeping, and reporting required in the permit are sufficient to ensure compliance with the emission and operation limitations included in the permit.

- C: **All continuous emission monitoring must be operational *prior* to the facility operating as a major source.**
- R: The permit does require that all continuous emission monitoring systems pertaining to the EASF system, which is currently shut down, must be operational prior to the facility re-

starting the EASF.

C: North Star should be required to submit a Quality Assurance/Quality Control Plan to ADEQ prior to any decisions regarding this Title V permit.

R: NSSA cannot provide the Department with a *Quality Assurance/Quality Control (QA/QC) plan* until the company has purchased the *CEMS*. The permit does, however, require NSSA to submit a *QA/QC plan* to the Department for approval 30 days prior to the instrument start-up.

C: Where is the independent third party to conduct multi-media compliance audits annually for three years. In no way should they be done once a year but quarterly and presented to the community in a public meeting format.

R: The multi-media environmental compliance audit was agreed upon for the purposes of the *Consent Judgement*. The Department does not have the statutory authority to require these audits within the air quality control permit.

C: We request that any monitoring reports submitted by North Star document the data in the same terms as the permit condition is described. For example, where a permit condition is defined in tons per month, that is the unit that should be expressed in any required reporting. This requirement should be specifically included in the permit so that there is no confusion regarding the data.

R: With two exceptions, the record keeping and reporting required by the final *Class I permit* will include values that are expressed in the same units of measurement as the corresponding applicable emission standard. One of the exceptions involves the records of natural gas consumption in the *reheat furnace*, where the limit is expressed in terms of heat input rate (Specific Condition I.B.6 specifies million British thermal units per hour (MMBtu/hr)) and the record keeping allows the values to be recorded in terms of either heat input rate or volumetric flow rate. Specific Condition III.C.2 has been revised in the final *Class I permit* to clarify the units of measurement required for records of natural gas consumption. As revised, the permit term allows either MMBtu/hr or cubic feet per hour. This is necessary to accommodate the use of a flow meter, which is believed by the Department to be the most accurate and reliable means of measuring heat input rate. The other exception involves the reporting of *performance test* results. Section IV of Attachment "B" of the permit requires that NSSA conduct *performance tests* for several pollutants at the *melt shop baghouse* exhaust and the *reheat furnace* exhaust. The reporting of *performance test* results will be in terms of pollutant concentration and mass emission rate, in accordance with the specified U.S. EPA Reference Test Methods. For emission standards expressed in terms of pounds per unit of production, the Department will make the compliance determination based on recorded production rates.

- C: I would hope that you disallow this permit and I would hope that you also further will at least allow the community to have more knowledge regarding the specific emissions proposed to come out of the stack of North Star Steel.**

We recommend that a monthly emissions report be compiled and kept on file in the City of Kingman offices, as well as at ADEQ.

It is imperative that the residents and government of Mohave County have easy access to emissions information for major source polluters in their County.

In no way is it acceptable that any of the air monitoring, any of the inspections be strictly put in Phoenix. We want them in our community, readily accessible and open to the public. And we would like them more often simply because we're concerned about our air.

- R: The Department does not have the statutory authority or monetary resources available to provide a monthly emissions report or copies of all monitoring and testing reports to the Kingman community. Please note that all reports required in the air quality control permit will be available to the public for review at the ADEQ offices at 3033 North Central Avenue in Phoenix, Arizona. Copies of the reports can be requested by contacting the file clerk for the AQD at (602) 207-2246, or toll-free in Arizona at (800) 234-5677, extension 2246.**

- C: ADEQ states that they have to take North Star Steel's word on the amount of poisonous metals, "they don't test for these things." They say they only test for particulate matter. We have to regulate toxic metals, and we sure are not going to take the word of a corporation that has the criminal record of North Star Steel.**

Some of the other mitigation may be requiring them to do some – just reports quarterly on the metals that they're getting. Where are they coming from?

There is also the area of the Hualapai Mountain residential area to the east of the plant. There have been high levels of arsenic found in the ground soil of late. Future testing of the ground soil all around North Star Steel needs to be done so we can be informed of the hazards that their disregard for the laws has caused our citizens.

- R: The scrap used as a raw material by NSSA is likely to contain trace metals such as arsenic, antimony, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium. These metals are classified as *hazardous air pollutants (HAPs)* under section 112(b)(1) of the federal CAA and are likely to be emitted from the NSSA *melt shop baghouse*. The primary regulations governing emissions of *HAPs* are the *Maximum Achievable Control Technology (MACT)* standards established by the USEPA under section 112(d) of the federal CAA. The USEPA also maintains, pursuant to section 112(c) of the federal CAA, a list of source categories to be regulated under *MACT* standards. Steel**

manufacturing *EAFs* were included in the initial *MACT* source category lists published by the USEPA. [See, for example, the “Federal Register” notices of July 16, 1992 (57 FR 31576) and December 3, 1993 (58 FR 63941).] This is the source category in which the NSSA *EASF* likely would have fallen. However, in 1996, the USEPA determined that there were no such sources in the United States that were *major sources* of *HAPs*. The USEPA removed steel manufacturing *EAFs* from the list of *MACT* source categories on June 4, 1996 (61 FR 28197).

As part of its review of NSSA’s permit application, the Department performed dispersion modeling analyses to determine whether the proposed emissions from the NSSA facility would meet the *AAAQGs* for thirty air pollutants. These comprise all air pollutants that are known to be emitted from steel mini-mills, based on extensive testing and other studies performed and reviewed by U.S. EPA. The analyses demonstrated that maximum predicted concentrations of all pollutants are less than the short-term *AAAQG* values, and are less than all long-term *AAAQG* values, with the exception of cadmium (CAS 7440-43-9) which exceeds the annual *AAAQG*. The annual *AAAQG* for cadmium is 0.00029 F g/m^3 , and the maximum model-predicted concentration is 0.000479 F g/m^3 . The *AAAQGs* are considered to be very conservative guidelines, and the emission estimates and modeling are also conservative. In addition, the *baghouse* used by NSSA is the most effective air pollution control device for cadmium emissions.

Finally, it should also be noted that NSSA is required (by Specific Condition I.A.9.e of Attachment “B” of the final *Class I permit*) to adhere to a documented scrap management plan which must be submitted to the Department for its approval. See the following comment from NSSA for further information about voluntary elements of the scrap management plan.

- C: At the meeting, concern was expressed about the Company’s acceptance of scrap that may include high concentrations of heavy metals. In fact, the Company has a scrap management plan and screening procedures in place to avoid exactly this situation.**

Scrap chemistry is an extremely important component to the efficient operation of the Company’s electric arc shaft furnace (EASF). Scrap and scrap chemistry is matched as closely as possible to the grade of steel that is being produced so that the amount of trim alloys that are added are kept to a minimum and that the ASTM grade requirements can be met. Any major deviation from the scrap specifications could result in a heat of steel (100 tons) being either subjected to additional processing time, the addition of expensive alloys or rejection for not meeting quality specifications.

Scrap is purchased according to a North Star Steel issued Scrap Specification Plan (the Plan) that contains scrap specifications and guidelines that are to be followed when purchasing, inspecting or rejecting scrap. The Plan starts with provisions for North

Star Steel representatives making both scheduled and unscheduled visits to scrap vendors to confirm scrap quality, including recordkeeping that will ensure the traceability of the scrap deliveries.

The first General Specification in the Plan states:

“Unless specifically allowed, all grades of scrap shall be free of non-ferrous metals, non-metallics of any kind, excessive dirt, loose turnings, cast iron, borings, chips, swarf, grinding dust, scale, oil, grease or excessive dirt. Terne plate, tin plate, detinned material, babbitt, resulphurized metal, electrical steel containing more than 0.5% silicon and stainless are not to be included in any of the scrap grades.”

The Plan further details chemistries for each grade of scrap, that scrap must be free of mercury switches and that the scrap must be free of radioactive materials. The Plan lists procedures that will be followed in rejecting scrap that does not meet all of these specifications. As a further safeguard against receiving radioactive materials, the Company has installed very sensitive radiation detection devices that scan and monitor all scrap entering the Kingman facility, in addition to monitoring the scrap as it is loaded into the charge buckets.

Moreover the draft permit requires in Section I.A.9.e that the Company submit a copy of the Scrap Management Plan to the ADEQ for review and approval, within 60 days of the permit issuance.

R: The Department believes that no response to this comment is needed.

C: **It is imperative that the public be alerted when the facility has had an excess emission or an emergency related emission. Such monitoring and record keeping should be readily available in Kingman for the public to review.**

If you do give them the permit, I'd like to have an early warning system put in.

R: *Excess emissions* or emergency related emissions are usually emissions that have not been foreseen by the Department or the company. Therefore, it would be impossible for the Department to implement an early warning system. However, NSSA is required to notify the Department within 24 hours of the time the company first learns of the *excess emissions*. Within 72 hours, NSSA must submit a written notification with specific information as outlined in Section XII.A of Attachment “A” of the permit. These reports will be available to the public for review at the ADEQ offices at 3033 North Central Avenue in Phoenix, Arizona. Copies of the reports can also be requested by contacting the file clerk for the AQD at (602) 207-2246, or toll-free in Arizona at (800) 234-5677, extension 2246.

C: **I would like to have gas masks if they're going to have toxic air bursts.**

R: In reviewing and processing the permit application submitted by NSSA, the Department performed detailed and extensive analyses of the air emissions from the NSSA facility, and the impacts of those emissions on the air quality in the surrounding area. Based on these analyses, the Department has concluded that the air emissions from the NSSA facility will not pose a health risk to the general public. In other words, the Department has concluded that the air emissions from the NSSA facility are not toxic, and therefore, no gas masks are needed.

It should be noted that the analyses performed by the Department are focused primarily on the air emissions that will occur under normal operation, when the facility and its equipment are functioning as designed. This focus is necessary and appropriate. The Department's review and the contents of the *Class I permit* are governed by Arizona laws pertaining to air quality permits (A.R.S §§ 49-426, 49-426.01, and 49-427), Arizona regulations pertaining to air quality permits (Articles 3 and 4 of Title 18, Chapter 2 of the A.A.C.), and federal laws pertaining to air quality permits (CAA, U.S.C. § 7401-7671). These laws and regulations also are focused primarily on the air emissions that will occur under normal operation.

The Department's engineering analyses also covered the technical adequacy of the air emission control equipment proposed for use at the NSSA facility. Based on these analyses, the Department has concluded that there will be no adverse air quality impacts when the facility and its equipment are functioning as designed, and that the equipment proposed for use at this facility is likely to function as it is designed.

In spite of this detailed engineering review and analysis, the NSSA facility, and in fact any facility that handles chemicals, can have unforeseeable accidents that can result in the release of air pollutants. Generally, these accidents are covered by laws and regulations other than those that are implemented by the Department's AQD as listed above. Importantly, Section 112(r) of the CAA, and the USEPA's implementing regulations (40 CFR Part 68), are designed to prevent accidental releases of chemicals to the air, and to minimize the consequences of releases that do occur. In developing this program, the USEPA established different levels of requirements for different facilities.

The requirements for a particular facility, as determined by the USEPA, are based on the facility's accident history, potential for off-site consequences associated with a worst-case accidental release, and compliance with the prevention requirements under the Process Safety Management Standard administered by OSHA. The NSSA facility does not store or use any chemicals in any quantities that are listed in the regulations. Accordingly, the requirements that apply to the NSSA facility under this program are the absolute minimum requirements. This indicates that the USEPA determined that the NSSA facility and other steel mini-mills have no potential for impact on the public in the case of an accidental chemical release. In other words, based on analyses and rule making conducted by the USEPA, it is reasonable to conclude that the NSSA facility will not emit any "toxic air bursts" that would necessitate the use of gas masks by the general public, even during

unavoidable and unforeseeable accidents.

C: It is imperative that ADEQ clearly explain to North Star that EPA has made recent changes to Arizona's Title V program, and excess emissions are no longer an affirmative defense for a violation.

R: The regulations regarding *affirmative defense for excess emissions* can only be used during periods of *start-up, shutdown, and malfunction*. The recent changes to the Department's permit program were established after the draft permit had been written and placed in public notice. The changes to the permit program were made to the A.A.C., Title 18, Chapter 2, Article 3, Section 310. The final permit does contain these changes as seen in Section XII.E of Attachment "A".

C: Is a public hearing going to be held regarding this matter?

R: A public notice for the draft proposed permit, including dates and times for a public meeting and hearing, was published in the Kingman Daily Miner and the Mohave Valley Daily News on September 28, 2001, and October 5, 2001. A public meeting was held at the Hualapai Elementary School which is located at 350 Eastern in Kingman, Arizona on October 17, 2001. A public hearing was held at the same location on November 1, 2001.

C: We are writing this letter to formally request a 30 day delay in the public comment period of the air quality permit application of North Star Steel of Kingman, AZ. We simply have not had the opportunity to review the application which has not been available locally in the area to review.

I request that ADEQ extend the public comment period by 30 days to ensure that all interested persons have an opportunity to submit comments on the proposed permit.

R: During the public comment period, a request was made for an extension of the comment period by an additional thirty days. In response to this request, the ADEQ published a notice in the Kingman Daily Miner and the Mohave Valley Daily News on November 19, 2001, and November 26, 2001, which extended the comment period an additional thirty days. An announcement was also made at the public hearing for the benefit of those requesting the extension.

C: What about the citizens who have no say and yet will suffer untold consequences of this evil act?

We the citizens of Mohave County sincerely deserve the opportunity to review this public corporation claims.

R: A public notice for the draft proposed permit, including dates and times for a public meeting

and hearing, was published in the Kingman Daily Miner and the Mohave Valley Daily News on September 28, 2001, and October 5, 2001. A public meeting was held at the Hualapai Elementary School which is located at 350 Eastern in Kingman, Arizona on October 17, 2001. A public hearing was held at the same location on November 1, 2001. In addition, a copy of the application, draft permit, and all supporting documents were available for review at the City of Kingman Office located at 310 North 4th Street and at the Mohave County Library located at 3269 North Burbank in Kingman, Arizona.

Everyone was given an opportunity to voice their concerns during the public comment period. During this period the Department was available to answer questions and accept written and/or verbal comments regarding the proposed permit. Furthermore, a thirty day extension of the comment period was granted in order to give concerned parties more time to review the permit.

Please note that if you would like to receive copies of future notices of proposed air quality permits, you can request that your name be placed on the AQD permit mailing list. To add your name to this list, clearly print or type your name, address, and zip code, and provide this information along with your request to the Director of the AQD at the following address: 3003 North Central Avenue, T5109B, Phoenix, Arizona, 85012-2905.

C: Why is the state considering allowing North Star Steel to lower its air quality standards?

I can't see Arizona caring much about its people or the Grand Canyon deterioration by these lowering of already bad air quality standards.

If being in a Republican State as Arizona is, why doesn't it set a higher quality of life for the people who live in it?

R: The Department is not allowing NSSA to lower its air quality standards. The mission of ADEQ is to preserve, protect and enhance the environment and public health, and be a leader in the development of public policy to maintain and improve the quality of Arizona's air, land and water resources. Under this *Class I permit*, NSSA is required to raise its air quality standards by installing *BACT* and performing extensive monitoring, record keeping, and reporting for the various emission standards and limitations. These additional requirements will ensure that public health and the environment are protected.

C: How can we brag about AZ as the quality of life continues to be compromised?

Pollution is close to the worst in the country and trying to get even worse. Where is the incentive for other states to follow AZ?

R: In both rural and urban Arizona, air pollution concentrations in the last 25 years have

decreased substantially for all of the common air pollutants. Only a handful of communities now exceed air quality standards, in contrast to the 1970's when many of them did, in spite of growth rates that are some of the highest in the country. New sources are regulated to effectively minimize air pollution emissions to ensure that the overall air quality is protected.

C: To let North Star pollute the air further would be a infringement on my right to breath clean air.

R: NSSA has applied for a permit to operate their facility and has performed all the necessary *BACT* analyses and air quality modeling analyses required by Federal and State regulations and State policies. Predicted concentrations are shown to be well within all the applicable air quality standards. While it's true that their emissions will inevitably degrade the existing air quality, it's also true that this degradation is moderate, is within the limits of the *Class II area PSD* guidelines, and poses no threat to violate any health standards.

C: The health, welfare, and safety of human life must take precedent over monetary gain by any group.

R: The AQD is dedicated to controlling present and future sources of air pollution to protect the environment and ensure the health and general welfare of the citizens of Arizona. At no time during the permitting process did the monetary gain of the industry being reviewed affect the decisions made by the Department.

C: Some of the things that we're concerned about is possibly setting up some more frequent air monitoring points, possibly at our schools.

R: The Department believes that no additional ambient monitoring is needed in the Kingman area at this time. Monitoring was already conducted to identify background concentrations of *criteria air pollutants* in the Kingman area. The modeling analyses showed that the *NAAQS* will not be threatened as a result of the operation of this facility. Maximum-model predicted ambient impacts due to emissions from NSSA and other facilities are less than seventy percent of the standards. Since the modeling is conservative in terms of coupling the worst-case meteorology with the worst-case emissions (i.e., *PTE*), actual concentrations are expected to be less than those presented in the modeling analysis. Therefore, monitoring at locations other than model-predicted maximum impact locations, such as schools, would only result in observed concentrations less than the maximum-modeled impacts.

C: Also, for the Hualapai Nation, possibly some more testing up at the Grand Canyon where they have a great interest in clean air because they're turning to be a Class I air shed.

R: The National Park Service conducts air quality monitoring in the area of the Grand Canyon, including a site at the South Rim and one at Meadview, west of the Hualapai Nation. These

two sites have been adequate to characterize air quality in the area.

C: Can they build the pipes that emit the smoke and filter out clean air?

R: The smoke produced at NSSA is a combination of gases and *PM* produced during the combustion process. Pipes will carry these emissions to the *baghouse*. NSSA is utilizing a positive-pressure *baghouse* to remove *PM* emissions from the *melt shop* exhaust. This process is similar to the way a vacuum cleaner filter works. A vacuum cleaner picks up dust along with some air, and filters it so that only the dust remains in the disposable bag. The now purified air is released back into the surroundings.

C: It is my understanding that ADEQ is developing a new statewide standard for opacity from fugitive dust. ADEQ should consider informing North Star of this impending change, and ensuring, before approving the Title V permit, that North Star has the capability to meet the 20% opacity standard.

R: NSSA cannot be required to abide by standards that have not yet been established as law. In the permit, NSSA is required to meet an *opacity* limit of 40 percent for fugitive emissions from paved and unpaved roads. If any new requirements become applicable during the permit term, NSSA will be required to meet them.

C: Is the employment of a small number of people worth the health risks to the men, women, and especially the children of Kingman, AZ?

While I can sympathize with those whose jobs are at stake, I can't see why there should be much consideration given to 130 jobs compared to the air quality that impacts 35,000 +/- residents of northwestern Arizona.

R: Employment opportunities were not considered in the evaluation of this permit, and had no influence on the decision to issue this permit. The AQD is dedicated to ensuring the health and general welfare of the citizens of Arizona. In order to ensure the safety and welfare of the surrounding community is protected, the Department compared the modeled impacts from NSSA and the other surrounding emission sources with the applicable air quality standards. This evaluation showed that the emissions from NSSA will not cause air pollution to reach unhealthful levels.

C: Who is allowing this, and are they on the payroll of North Star?

R: In accordance with A.R.S. § 49-426.A, permits are issued by the Director of the AQD. The Director is fulfilling her duties as mandated by A.R.S. § 49-426, and has not entered into an agreement with any entity that would affect her decision to issue this permit.

C: So the water content that is in our aquifer out there that this plant is going to be using

and drawing from is going off water modeling that is not accurate and is incorrect.

I read in the newspaper that we have a hundred years of water in this county right now. Maybe that isn't so if you keep on bringing in companies that use water.

R: The AQD has reviewed only the air quality impacts from the facility. Water consumption issues are not within the jurisdiction of the ADEQ.

C: **In Attachment "A" "General Provisions under section II, add subsection C with the following language.**

Except as specifically provided herein, the terms and conditions of this permit become effective 120 days from the date of permit issuance to allow the Permittee to install any necessary equipment and to establish the monitoring, record keeping and reporting procedures necessary to demonstrate compliance with the terms and conditions of this permit.

R: The requested change has not been made. However, Attachment "B" of the permit does reflect changes to Specific Conditions as requested by NSSA in a follow-up clarification letter dated January 21, 2002. Compliance with the following Specific Conditions is required no later than 120 days after permit issuance:

- Specific Conditions I.C.1 through I.C.3;
- Specific Conditions I.D.1 through I.D.3;
- Specific Conditions III.C.1 through III.C.3;
- Specific Conditions III.D.1 through III.D.6; and
- Specific Conditions III.E.1 through III.E.6.

- C: Attachment “B”, Section I.A.3, I.A.4, I.A.5.a, and Comments on Emission Limits/Standards for SO₂, NO_x, and CO

Action Requested: The language of the emission limits for sulfur dioxide, nitrogen oxides and carbon monoxide is unnecessarily confusing and potentially contradictory. As a substitute for each of the limits we would proposed the following (for Condition I.A.3):

Permittee shall not cause to be discharged into the atmosphere from the melt shop baghouse vent any gases which contain sulfur dioxide in excess of either of the following limits: 24.0 lbs per hour and 0.200 lbs per ton of steel produced.

- a. *For the purposes of determining compliance with these emission limits using a performance test, the Permittee shall follow the procedures prescribed by Section IV.B.4 and 5. The term “tons of steel produced” shall mean the actual steel production rate demonstrated during the performance test period and the averaging period shall be the total duration of the three test runs.*
- b. *For purposes of determining compliance with these emission limits using a continuous emission monitor, the Permittee shall follow the procedures prescribed by Section II.B.4. The term “tons of steel produced” shall mean the maximum allowable steel production rate established in accordance with Section I.A.9.b.*

Reason: The draft permit mixes the requirements for determining compliance with the three emission limits using performance tests and continuous emissions monitors in the same paragraph and it is not entirely clear which procedures apply to which compliance methods. Also, the paragraph incorporates references to other permit conditions that are incorrectly cited thereby further confusing the requirements. We have simplified and divided the requirements based upon whether the compliance methodology referenced is for performance tests or for continuous emissions monitors. Also, when a sentence such as the second sentence in the draft provision is both unnecessary (because it is covered in a cross-referenced provision) and confusing, it has been omitted.

- R: The Department agrees that Specific Conditions I.A.3, I.A.4.a, and I.A.5.a in the proposed *Class I permit* were potentially confusing. These permit terms have been revised, using language similar to that requested by the commenter, to eliminate the potential for confusion.

- C: Attachment “B”, Section I.A.6 Comments on Emission Limits/Standards for VOC

Action Requested: Replace with the following text to make a specific statement of the

emission standard in this section. As proposed, the language confuses the issues of compliance testing and monitoring procedures. The primary point is removing the word “rolling” from before 24-hour averaging time. As a substitute we would propose the following:

Permittee shall not cause to be discharged into the atmosphere from the melt shop baghouse vent any gases which contain volatile organic compounds in excess of either of the following limits: 42.3 pounds per hour and 0.352 pounds per ton of steel produced. Each of these emission limits is based on a 24-hour averaging time. For the purposes of demonstrating compliance with this emission limit during a performance test conducted pursuant to Specific Condition IV.B.1 of this Attachment, the “pounds per ton of steel produced” rate shall be calculated using the actual steel production rate demonstrated during the test period.

Reason: This section of the permit conditions identifies the emission limit and averaging period, and should not confuse the limit with a monitoring procedure, if it is imposed. The compliance determinant is a reference method test procedure, with the VOC emission rate determined as an average of the individual test run block averages. Reference method tests cannot determine a rolling average, and this condition should not imply such a limit. This is further reinforced by the fact that there is no requirement for VOC monitoring and no basis for any rolling average VOC determination.

- R: The Department agrees that the use of the term “rolling” in Specific Condition I.A.6 in the proposed *Class I permit* is unnecessary. This permit term has been revised, using language similar to that requested by the commenter, to eliminate the potential for confusion.
- C: Attachment “B”, Section I.A.9.c Operational Limitations (Steel Production)

Action Requested: Replace the second sentence with the following:

For the purposes of this permit condition, the steel production rate is measured as the quantity of steel tapped from the EASF, based on a rolling annual sum that is updated monthly.

Reason: As previously discussed and agreed to by the ADEQ, the monthly production limit will be calculated by multiplying the total scrap consumed by the electric arc shaft furnace in any given month by the corresponding monthly Meltshop yield. This information is listed on the Company’s monthly financial statements and is available for review within seven days following the end of the month. This system is the most accurate method of accounting for meltshop production. This system adjusts for all yield losses. Daily production numbers, while indicators, do not incorporate these adjustments and are, therefore, subject to inaccuracies.

R: No change has been made to the permit term as presented in the proposed permit. The Department believes that daily tracking of production rate is appropriate and that the inaccuracy associated with month-to-month differences in yield are not sufficient to warrant a decrease in recordkeeping frequency.

C: **Attachment “B”, Section I.B.1 Opacity Standard**

Action Requested: Add the following test to the end of the sentence:

... except during periods of startup, shutdown, or malfunction.

Reason: The Company assumes that the failure to include the requested language in the opacity standard for the reheat furnace was inadvertent. The ADEQ has included the requested language in the opacity standards for the melt shop baghouse vent, melt shop baghouse dust handling system and the meltshop itself [Section I(A)(1)]. There is no legal or technical distinction between the conditions during startup, shutdown and malfunction that could cause an unavoidable exceedance of the opacity standards for these meltshop-related emission points and the reheat furnace exhaust stack. It should also be noted that other Title V permits issued by ADEQ as well as those issued by other Arizona jurisdictions, routinely contain the exception language that the Company has requested when exceedances of an opacity standard during startup, shutdown or malfunction are unavoidable for the technologies or the production process or air pollution control system involved. See, e.g., the Title V/PSD permits issued by ADEQ and Maricopa County for stationary gas turbine power plants. The exception is also applicable to virtually all of the New Source Performance Standards.

R: No change has been made to the permit term as presented in the proposed permit. The Department believes that zero *opacity* of visible emissions from the *reheat furnace* exhaust is an achievable emission standard under all operating conditions. The Department also notes that A.A.C. R18-2-310 provides the Permittee with an *affirmative defense* for *excess emissions* attributable to *startup, shutdown, and malfunction*.

C: **Attachment “B”, Section I.E.2.d Fuel Usage in the Temporary Portable Generator**

Action Requested: Remove the text and replace with the following text:

Permittee shall not cause, allow or permit the firing of any fuel other than number 2 diesel oil with a maximum sulfur content of 0.5 percent.

Reason: The modeling protocol addendum that was submitted to the ADEQ (letter dated January 28, 2000 from Sara Head, ENSR to Prabhat Bhargava, ADEQ) specified that the temporary portable 1,750 kW generator would fire number 2 diesel oil with a sulfur content not to exceed 0.5 percent. The PM₁₀ emission rate used in the modeling

reflects combustion of this diesel fuel oil. The Company has never represented that the temporary portable 1,750 kW generator would or could fire natural gas.

R: The Department notes that this permit term, as presented in the proposed permit, was drafted in error. The requested change has been made, with a slight change in wording.

C: **Attachment “B”, Section I.E.2.e Locations for Temporary Portable 1,750 kW Generator**

Action Requested: Remove the text and replace with the following text:

Permittee shall not cause, allow or permit the operation of a portable emergency generator at any location other than the following twelve [12] locations as noted on Figure 1, “North Star Steel Arizona - Locations for Transformer Failure” in Attachment F to this permit: inside melt shop; outside near B01; outside near pump house; outside near shipping crane; outside near rollshop; outside near rail scale house; outside near scrap crane; outside near security.

Reason: On August 6, 2001 James Crompton of the Company sent a letter to Prabhat Bhargava of ADEQ that responded to ADEQ’s letter of May 11, 2001. The Company’s August 6, 2001, letter contained the results of a PM₁₀ 24-hour PSD increment analysis that demonstrated compliance. This analysis included the evaluation of the temporary portable 1,750 kW generator in twelve [12] locations. The Company wants to insure that the permit includes language that allows the temporary portable 1,750 kW generator to operate at these twelve [12] locations.

R: The Department notes that this permit term, as presented in the proposed permit, was drafted in error. The requested change has been made.

C: **Attachment “B”, Section I.G.2.b(1)(b) Paved Roadway Cleaning**

Action Requested: Replace the text with the following as one of the conditions for the Department removing sections I.G.2.b(1)(c) & (d) from the permit:

The area shall be vacuumed/swept and watered in a manner designed to ensure capture of the deposited material at least once every two weeks when the meltshop is operating. More frequent vacuuming/sweeping and watering may be required as necessary to reasonably meet good-housekeeping practices when the meltshop is operating. Vacuum/sweeping is not required when the meltshop is not operating, but paved roads shall be watered at least once every two weeks.

Reason: To address ADEQ’s concerns about fugitive emissions in general, the Company will replace its current paved roadway cleaning equipment with equipment

that is more efficient. This equipment will be purchased or leased. In addition to the vacuum/sweeping at least once every two weeks, the Company will water the paved roads at least once every two weeks.

Vehicle traffic on paved roads is at its greatest during meltshop operation because trucks deliver scrap and take away product. When the meltshop is not operating vehicle traffic on paved roads is substantially diminished because scrap is not delivered. Billets for hot rolling are brought in primarily by rail and product is shipped by truck and rail. Since truck traffic is diminished when the meltshop is not operating the Company believes that vacuum/sweeping is not necessary during this period. Watering at least once every two weeks will provide the appropriate level of control. The Company notes that compliance with the PSD increment of 30 mg/m³ can be demonstrated even when assuming a zero percent control efficiency for paved roads. Considering this, the Company believes that vacuuming/sweeping only when the meltshop is operational is reasonable.

R: The Department does not agree that the change from vacuuming to “vacuuming/sweeping” is appropriate and representative of *BACT* for a steel mini-mill. The Department does, however, agree that relaxation of the vacuuming requirement during extended periods of *melt shop* downtime is appropriate, and a change to the permit term has been made to reflect this relaxation.

C: Attachment “B”, Section I.G.2.b(1)(c) & (d) Silt Loading on Paved Roadways

Action Requested: Remove these requirements.

Reason: The requirements to conduct monthly silt loading tests are not warranted in light of the facility’s fugitive dust control measures, other regulated sources have not had additional monitoring costs imposed on them, and having no environmental justification. As discussed in the preceding comment, in its letter of June 4, 2001, to Prabhat Bhargava, the Company committed to purchasing or leasing more efficient equipment to clean paved roadways at the mill and watering the paved roadways at least once every two weeks. The Company re-iterates these commitments and requests that language be added to the permit about watering the paved roadways at least once every two weeks. These measures are proposed to demonstrate the Company’s strong commitment to controlling fugitive dust from paved roadways. The Company proposes to update its fugitive dust control plan to incorporate these measures. We believe that the proposed measures will aggressively control fugitive dust from paved roadways under the specific conditions at the mill and are sufficiently comprehensive that silt load monitoring is not necessary.

Moreover, the silt load monitoring proposed by ADEQ is unprecedented both in Arizona and in the steel industry and imposes costs on North Star that are not incurred

by others. The Company has reviewed other steel mini-mill operating permits and is aware of no other that requires silt load testing. Furthermore, the Company has reviewed the fugitive dust control provisions included in the permits of copper smelting companies (Asarco, Hayden, Phelps-Dodge Miami) and mining companies in Arizona and is aware of none that require the permit holder to incur the costs of silt load monitoring. There is no basis for treating the Company differently from these other sources by requiring ongoing monitoring.

Finally, there are no environmental considerations that justify imposition of the silt load monitoring on the Company. If there were a compelling circumstance for requiring a facility to conduct silt load monitoring and incur its attendant costs, it would be at facilities located in particulate non-attainment areas. Yet, the ADEQ has not previously required silt load monitoring even under these circumstances. The Company's review of permits indicates that copper smelting facilities and mines located in particulate non-attainment areas are not required to conduct silt load monitoring. If such monitoring is not required in areas, which exceed the NAAQS for particulate matter, it should not be imposed on sources located in areas that fully comply with the NAAQS.

The Company also notes that including provisions to measure silt loading is not warranted based on the dispersion modeling results for the mill. These results show that under normal operating conditions the model predicted 24-hour PM_{10} concentration is just 86% of the allowable increment of 30 mg/m^3 and that this concentration is predicted at the property boundary. Concentrations drop off dramatically from this location such that the PM_{10} increment consumed by the Kingman mill should not interfere with future economic development in the region. Furthermore, model predicted PM_{10} 24-hour concentrations are about 19% of the NAAQS standard of 150 mg/m^3 , which is a health-based standard. The increment analysis shows sufficient margin for economic development in the region and the impact of the emissions from the Kingman mill on the PM_{10} NAAQS is minimal.

The Company also notes that including provisions to measure silt loading is not warranted based on the dispersion modeling results for the mill. As presented above, the dispersion modeling was updated to include fugitive dust emissions from paved and unpaved roads based on revisions to calculation methods proposed (October 2001) by the U.S. EPA. As shown in Table 1 attached to this letter, under normal operating conditions the model predicted 24-hour PM_{10} concentration is just 60% of the allowable increment of 30 mg/m^3 when a fugitive dust control efficiency of 50% is applied to the paved roads. Even assuming no control of fugitive dust from paved roads, the corresponding model predicted concentration is just 78% of the allowable increment. Note that these concentrations are predicted near the property boundary. Concentrations drop off dramatically from this location such that the PM_{10} increment

consumed by the Kingman mill should not interfere with future economic development in the region. Furthermore, model predicted PM₁₀ 24-hour concentration are about 14% of the NAAQS standard of 150 mg/m³, which is a health-based standard. The increment analysis shows sufficient margin for economic development in the region and the impact of the emissions from the Kingman mill on the PM₁₀ NAAQS is minimal.

R: The Department agrees with the comment. The permit terms have been revised accordingly.

C: Attachment “B”, Section III.B.3.a Inspection of DEC System

Action Requested: Replace the text with the following:

Permittee shall perform weekly operational status inspections of all equipment that is important to the performance of the entirety of the melt shop capture system. After six months of performing weekly operational status inspections, and providing the inspections results to the Department, the Permittee may petition the ADEQ to change the performance inspection schedule, but at no time, less frequently than monthly. Equipment to be inspected shall include, at a minimum, pressure sensors, dampers, and damper switches. The inspection shall include at a minimum, observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). Any observed deficiencies shall be noted and documented in a permanent maintenance record.

Reason: The Company believes that the CERMS coupled with the bag leak detection system and daily visible emission checks will provide solid evidence of compliance and that weekly inspections of the meltshop capture system are not necessary. The Company would prefer to perform monthly operational status inspections in accordance with the NSPS requirements [40 C.F.R. §60.275a(d)] and with generally accepted practice in the steel industry. This frequency of inspections has proven over time to be more than adequate to identify duct leakage and other problems before they become significant. Nevertheless, the Company understands that it is important to establish a solid record of compliance to the ADEQ. Subsequent to being able to demonstrate such, the Company would like permit language that would accommodate a change in the inspection frequency without requiring the Company to seek, and the ADEQ to act, upon a permit modification request.

R: The Department agrees that adding the requested language to the permit, allowing NSSA to petition the Department for a decreased inspection frequency, is reasonable. The Department also notes that it is under no obligation to grant such petition. The requested change has been made.

C: **Attachment “B”, Section III.B.3.e Fan Motor Amperage**

Action Requested: Delete the entire provision and substitute the following:

Operation of the DEC system fan motor at an amperage exceeding a range of ± 15 percent of the value established during the most recent performance test may be considered to be unacceptable operation and maintenance of the system. These values will be recorded and reported to ADEQ semiannually.

Reason: The use of an amperage range for the DEC system fan motor as an emission limit is improper and unacceptable. An amperage range provision is appropriate only if imposed in the same manner as in the New Source Performance Standards [40 C.F.R. § 276a(c)] and that is what has been proposed.

1. An amperage range is not an emission limit.

Under A.A.C. R18-2-101(36), an emission “means an air contaminant or gas stream, or the act of discharging an air contaminant or a gas stream, . . .”. Amperage measures the strength of an electric current. It is not an air contaminant or gas stream and a measurement of the passage of electric current to the fan motors operating in the DEC system is clearly not the act of discharging an air contaminant. Thus, according to the plain language of the ADEQ definition of an emission, an emission cannot be an amperage range and, therefore, an exceedance of an amperage range cannot constitute excess emissions.

2. An amperage range is not a legitimate surrogate parameter for measuring emissions of particulate or any other pollutant.

Not only is an amperage range not itself an emission limit, it is not a valid means of measuring compliance with whatever emissions limit ADEQ believes is applicable.

- a. A DEC fan system amperage range cannot be used to measure either particulate emissions or the particulate removal efficiency of the baghouse.

The DEC fan system handles less than 10% of the approximately 1,000,000-scfm baghouse capacity. The DEC system joins with the approximately 900,000 scfm from the multiple canopy hood systems in the ductwork, then proceeds through 3 or 4 of the

main air fans before entering and exhausting from the baghouse. This puts the DEC fan system significantly upstream from the emissions control/measuring location at the baghouse. Because the DEC fan system is located upstream of the meltshop baghouse, a measurement of the DEC fan amperage does not measure either particulate emissions or meltshop baghouse efficiency.

- b. A DEC fan system amperage range cannot be used to measure the emissions of any other pollutant.

According to EPA's New Source Review Workshop Manual (draft October 1990), ("NSR Manual"), a surrogate parameter like a fan amperage range is only appropriate "[w]here continuous, quantitative measurements are infeasible, . . ." NSR Manual, p. H.6. The draft permit requires the operation of continuous emissions monitors to continuously quantitatively measure nitrous oxides, sulfur dioxide and carbon monoxide emissions. Thus, it is inappropriate to have a surrogate parameter to determine compliance with the emission limits for these pollutants.

Moreover, a surrogate parameter can only be used if it exhibits a direct "correlation with source emissions" and must be determined on the basis of source testing or confirmed design characteristic. NSR Manual, p. H.6. ADEQ has failed to demonstrate a direct relationship between a change in DEC fan amperage and source emissions. Nor has ADEQ pointed to a design characteristic or source testing data to justify the use of the DEC fan amperage range as a surrogate parameter.

First, there is no correlation between the DEC system fan motor amperage and emissions of any pollutant from the melt shop baghouse. The DEC system has three fans, two of which operate at any one time. The purpose of the fans is to move exhaust gas from the Shaft Furnace through ducts to the point where it joins ducts conveying the various canopy hood gases. The combined gases are then conveyed to the particulate emission control device, i.e., and the baghouse. The DEC fans operate at a constant speed. The fan amperage varies based upon the level of electric current needed to maintain that constant speed. Thus, the control system on the fans operates very much like the cruise control on an automobile – amperage varies depending upon the electric load required to maintain a constant fan speed. The variability of electric load bears a direct relationship to changes in exhaust gas density and exhaust gas density is the product of a number of variables including gas temperature, pressure and flow rate. However, these same variables may not affect emission levels at all or may not affect emission levels in the same manner as they affect density. In other words, while both exhaust gas density and emission levels may relate to events in the operation of the Shaft Furnace, and both are the product of many of the same variables, they are not necessarily affected by the same events or the same variables in an equivalent manner. For this reason, the levels of emissions measured by the CEMS cannot be correlated to changes in DEC fan amperage.

Second, nothing in the source testing data or design characteristics of the DEC system supports the view that there is a correlation between fan amperage demands and particulate or any other emissions. The only apparent basis for ADEQ's selection of a ± 15 percent range for fan motor amperage is the use of that value in the New Source Performance Standards for Electric Arc Furnaces [40 C.F.R. Subpart AAa; 40 C.F.R. § 60.276a(c)]. However, the use of the amperage range in the NSPS is not as an emission limit or even a surrogate parameter. It is merely a factor that EPA "may consider" in determining the acceptability of a furnace's operation and maintenance. Nothing in the language of the regulation itself or the Technical Support Document for the regulation suggests that the amperage range can in any way be directly correlated to emissions. As importantly, the amperage range was based on the operation of a conventional furnace and was intended to prevent roof emissions from an open melt shop. The emissions characteristics and level of emissions variability between a conventional electric arc furnace and a shaft furnace like that operated at the Kingman plant are entirely different and the melt shop at the Kingman mill has a closed roof not an open shop. As an example, the fact that scrap fills the shaft (DEC system) during early stages of each "heat", creates an additional load (higher amps) that is not encountered in conventional EAF operations. Although higher amp readings may result this does not necessarily result in excess emissions. Thus, the range contained in the NSPS is based on data from furnace operations that does not apply to the Kingman plant.

3. A surrogate parameter cannot be used as an emission limit.

By defining a surrogate parameter such as a fan amperage range as an emission limit, ADEQ subjects the Company to the same severe criminal and civil penalties as would be imposed if the Company violated a limit that measures actual emissions. Thus, variation from a fan amperage range makes the Company potentially guilty of a Class 5 felony, even when actual emissions as measured by the CERMS are compliant with permit emissions limits. See A.R.S. § 49-464.C. This unjust result is contrary to law. As EPA declared in its final adoption of the Compliance Assurance Monitoring regulation, excursion from a surrogate parameter is, at most, a potential indicator that the underlying emission limit may have been violated, but even that inference cannot be drawn without further investigation [62 Fed. Reg. 54900 at 54907 (October 22, 1997)]. Where, as here, the surrogate parameter bears no relationship to any emission limit or actual emission levels, it is entirely improper to treat it as though it is an emission limit.

4. An amperage range of ± 15 percent for the DEC system fan motors cannot be consistently achieved by the Kingman plant and it would be undesirable if it could be achieved.

ADEQ has been provided with the fan amperage ranges measured during many of the

performance tests conducted on the melt shop. Those amperage ranges have excursions that are outside the +/- 15 percent range proposed in the draft permit, however the various filterable particulate test results indicate that the results are up to 2 orders of magnitude below the permit limit. This again confirms the lack of correlation between the DEC fan amps and emissions. Enclosed as Attachment #1 is a compilation of the fan amperage range for performance tests conducted during calendar years 1999 and 2000 that illustrate this point.

If the plant were required to operate within the +/-15 percent range, it would be impossible to consistently maintain a constant fan speed. In such event, there would be periods when the fans would not pull hard enough and the result would be increased fugitive emissions in the melt shop. These fugitive emissions would not be controlled by the CO pollution control device required by the permit, potentially resulting in excess emissions. Conversely, when the fans pulled harder than necessary, the additional inflow of ambient air into the DC Shaft Furnace would potentially increase the formation of NO_x, quench the gas stream and require more energy to maintain the proper off-gas temperature for CO combustion. Neither result is environmentally desirable.

Since DEC fan amperage is not an emission limit, or even a surrogate measure of emissions, and will produce undesirable results, the Company does not believe ADEQ's proposed imposition of this requirement is justified and requires the requested change.

R: The Department disagrees with the commenter's point #1 and notes that "emission standard" is defined by A.A.C. R18-2-101.37 as "a requirement established by the state, a local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction." The fact that amperage is not an "emission," as that term is defined at A.A.C. R18-2-101.36, is not material.

Given that the NSSA *melt shop baghouse* is required to control emissions from the entire *melt shop*, not just the *EASF* exhaust, the Department agrees with the commenter's point #2a, regarding the relationship between *DEC system* fan motor amperage and *PM* emissions. However, as discussed below, the Department believes that a requirement to maximize capture efficiency with respect to *EASF* emissions is a necessary component of the *CO BACT* determination for the NSSA *melt shop*, so this point is not material.

The Department disagrees with the commenter's point #2b, regarding the relationship between *DEC system* fan motor amperage and *CO* emissions. The Department believes that a requirement to maximize capture efficiency with respect to *EASF* emissions is a critical component of the *BACT* determination. The Department further believes that it is

technically infeasible to establish and continuously monitor compliance with a numerical limitation on *DEC system* capture efficiency and that *DEC system* fan motor amperage is an appropriate surrogate parameter.

The Department disagrees with the commenter's point #3 and again notes that "emission standard" is defined by A.A.C. R18-2-101.37 as "a requirement established by the state, ... including any requirements which ... prescribe operation or maintenance procedures for a source to assure continuous emission reduction." It is entirely consistent with the Department's intent that adherence to a work practice standard governing capture system operation is as enforceable as an emission limitation expressed in terms of mass emission rate per unit time.

Based on a review of *DEC system* fan motor amperage data provided by the commenter, the Department agrees that maintaining the amperage within ± 15 percent of a specified value is not representative of good capture system performance. For this reason, the referenced permit term has been changed to provide for establishing the *DEC system* fan motor amperage as an indicator value in the *CAM plan*, with the amperage range to be established during initial testing, in coordination with the optimization study required by Specific Condition I.A.5.d.

C: Attachment "B", Section III.B.4.b Performance Specifications for Monitoring SO₂, NO_x, and CO, Paragraph (1)

Action Requested: It is requested that the wording regarding CERMS equipment performance be revised to allow more flexibility relative to 40 CFR Part 60, Appendix B performance specifications consistent with the current state-of-the-art for monitoring steel mill emissions. Although CEMS have been installed as compliance indicators at steel mills, it appears that no steel mill or CEMS manufacture has taken the next step in developing a certified CERM's mass emissions rate monitoring unit for use as a compliance determinate at a steel mill. In addition, SO₂ CEMS cannot meet the performance specification relative accuracy requirement, and that equipment suppliers have been unable to state with any confidence that they can certify the CERMS to meet the emission rate monitoring specifications for relative accuracy. Technical information on the use of CEMS at steel mills is expected in the next six months. The Company believes that there should be additional discussion and technology review between the Department, the Company, and CEMS/CERMS equipment suppliers at that time. In the interim, the permit condition should be modified to give the Department the flexibility to modify the system requirements should it turn out that the technology is simply unable to achieve the permit requirements.

Reason: The Company has had in-depth discussions with several CEMS equipment suppliers. Suppliers indicate that the average emission levels for NO_x and CO are high enough that the instruments should be able to meet the appropriate performance

specifications on a ppm basis. However, they report that the average SO₂ gas concentration and limit is too low for the instruments to meet the +/-20% accuracy requirement of Performance Specification 2. At 24 lb of SO₂ per hour and a design baghouse flow of 1,000,000 scfm the equivalent emission concentration is 2.4 ppm. However, because steel production is a batch process there will be periods when emissions of SO₂ are at 0 ppm, for much of the melt cycle at 0.5 to 1.5 ppm, and at times will range up to 10 to 20 ppm. One supplier reports that the electronic noise of the monitor and communication systems has an error rate of 0.5 ppm, which is significant at the bottom of the measuring range. There are no protocol gases in the range of the standard (the lowest SO₂ concentration EPA protocol gas supplied by Scott Specialty Gases is 10 ppm). A supplier has recommended that a modified relative accuracy be allowed, similar to that found for CO in Performance Specification 4A for CEMS, that comply with low emission standards. This would allow an error of 20% of the Reference Method (RM) value, 10% of the applicable limit or 5 ppm as the absolute average difference between the RM and CEMS plus the 2.5 % confidence coefficient. The Performance Specification 6 CERMS requirement adds a degree of complexity and error for which CEMS equipment suppliers have no experience with steel mills. The combination of the variable concentration ranges for pollutants, CEMS error and the variable flow and CERMS flow instrument error compounds the total CERMS error. As a result, equipment suppliers have been unwilling to express confidence that the systems can meet Performance Specification 6 relative accuracy specifications. The Company notes that Nucor Steel is installing a pilot CEMS at their Norfolk facility as a condition of their Consent Decree issued by EPA earlier this year. The Consent Decree indicates that a report on the CEMS installation is scheduled to be issued to EPA during the second quarter of 2002. This will be before the Kingman facility is scheduled to restart and may be of benefit to the Department and the Company regarding the performance capability of CEMS/CERMS.

- R: The Department agrees that a less restrictive relative accuracy requirement for the *SO₂ Continuous Emission Rate Monitoring System (CERMS)* is necessary, given the low *SO₂* concentrations expected. The permit term has been revised accordingly. With regard to the comment pertaining to calibration (protocol) gases, the Department notes that the applicable performance specifications provide for the use of dilution systems where necessary.
- C: Attachment "B", Section III.B.4.b Performance Specifications for Monitoring SO₂, NO_x, and CO, Paragraph (3)

Action Requested: It is requested that the wording regarding quality assurance be revised to base requirements on 40 CFR Parts 60 and 64 and delete reference to Part 75:

The Permittee shall submit a Quality Assurance/Quality Control Plan to the Department 30 days prior to the instrument start-up, including procedures for

dealing with data gaps, based on the procedures contained in 40 CFR Part 64. When approved by the Department, the plan shall be implemented.

Reason: The Part 75 procedures would add a level of complexity not justified for this type of source and emission. A CEMS/CERMS equipment supplier reports that the part 75 data substitution routines alone increases the cost of the data acquisition system (DAS) by a factor of two and a half times. The Part 75 requirements applicable to utilities add a significant degree of complexity that is often confusing even to experienced utility personnel. Steel mill personnel are not experienced in these federal procedures for regulated utilities and imposition of the utility requirements would unreasonably increase the Company's monitoring costs with no emissions reduction benefit.

R: No change has been made to the permit term as presented in the proposed permit. The Department believes that minimization of CEMS downtime is a very important consideration and that the data gap filling procedures in 40 CFR 75, Subpart D, §75.30 are therefore justified.

C: Attachment "B", Section III.B.4.h Monitoring for SO₂, NO_x, and CO

The Company agrees to 24-hour averaging time for monitored emissions, but requests that it be block 24-hour periods because it is more consistent with source monitoring rules, as opposed to a rolling average calculated hourly. The Company proposed the following condition to clarify how the CEMS and CERMS emission data are to be evaluated for compliance purposes:

Following the initial performance tests, 24-hour average emission rates shall be computed from CEMS and CERMS data and shall be recorded at the end of each meltshop operating day from the measured or predicted hourly emission rates. All 24-hour average emission rates shall be expressed in terms of measured parts per million concentration, calculated pounds per hour emission rate, and calculated pounds per ton of steel produced. For purposes of this Specific Condition, the term "tons of steel produced" shall mean the maximum allowable steel production established in accordance with Specific Condition I.A.9.b (corrected reference) of this Attachment.

Reason: The Company requests that the monitored compliance value be a 24-hour block average as a reasonable and necessary averaging procedure for this type of batch process. The steel melting furnace operation is not like a fixed burner design with constant emission performance, and temporary excessive emission levels are expected to be the result of unpredictable process upsets that occur through no fault or negligence on the part of the operator. If a temporary flare up of emissions causes the previous 24-hour average emission to exceed the limit value there is no opportunity to

prevent the exceedance. However, with a 24-hour block average there can be opportunity for the operators to take positive action to reduce subsequent emissions and maintain compliance over the 24-hour period. Also, the 24 hour block averaging procedure is consistent with federal New Source Performance Standards that require monitoring. As an example, Subpart Db for industrial boilers requires regulated sources to monitor hourly SO₂ and NO_x emissions and calculate a 24-hour daily average and 30-day compliance average once per day. Subpart Eb for Municipal Solid Waste Combustors requires 24-hour daily average emission calculations for SO₂ and NO_x from the hourly monitor values. We are not aware of any source emission standard that requires rolling 24-hour average determination. We are suggesting recording of ppm values since for any individual monitored pollutant this may be the only value meeting relative accuracy requirements.

- R: With regard to changing the rolling 24-hour average to a 24-hour block average, no change has been made to the permit term as presented in the proposed permit. The Department believes that hourly rolling averages for these emission limits are appropriate. The Department also notes that a “temporary flare-up of emissions” that causes the rolling 24-hour average to be in excess of the emission limit indicates non-compliance with the *BACT* emission limit. Furthermore, in response to the commenter’s statement that a 24-hour block average will provide an opportunity for the operators to take positive action to reduce subsequent emissions and maintain compliance over the 24-hour period in the event of a “temporary flare-up of emissions,” the Department emphasizes that a rolling 24-hour average will provide the operators with increased opportunity and incentive to take positive action, because each subsequent hour in which the average is in excess of the emission limit will constitute a separate violation.

With regard to the proposed second sentence, and the terms in which recorded values are to be recorded, the requested change has been made.

- C: **Attachment “B”, Section III.B.5.b Reporting Requirements for SO₂, NO_x, and CO**

The Company suggests that the wording be broadened to allow for use of data that may not be from equipment certified as meeting Performance Specification requirements and acceptable as a compliance determinant. We propose the following condition to clarify how the CEMS and CERMS emissions data is to be evaluated for compliance purposes:

Excess emissions indicated by the CEMS or CERMS shall be submitted to the Department under Condition XII of Attachment A and excess emissions based on certified instruments data may be considered credible evidence of violations of applicable emission limit for the purposes of this permit. Based on indicators of continuing excessive emission, the Department may require the Permittee to perform reference method compliance tests.

Reason: It is not yet determined to the degree that CEMS/CERMS can be certified to meet compliance determinant requirements.

R: No change has been made to the permit term as presented in the proposed permit. The Department notes that the permit term does not preclude the use of other credible evidence to be used by any party to demonstrate compliance or non-compliance with applicable emission limits.

C: **Attachment “B”, Section III.C.3 & 4 Reheat Furnace Natural Gas Sulfur Content Monitoring**

Remove requirement number 4 and change number 3 to the following:

The Permittee shall only combust pipeline-quality natural gas or equivalent gaseous fuel in the reheat furnace.

Reason: Since the Kingman mill does not generate power for sale like an independent power plant or regulated utility, it is not required to have a FERC-approved tariff agreement to purchase natural gas. Since no such agreement exists, the Company’s natural gas supplier, Enron, has refused to provide the sulfur content of the natural gas. Therefore the company cannot provide the requested information to the ADEQ. The company has requested Enron to provide a letter verifying that Enron will not provide the sulfur content of the natural gas. This letter has not yet been provided to the Company. When the Company receives such a letter, a copy will be forwarded to the ADEQ.

R: The requested change regarding the tariff agreement has been made. The requested change regarding “equivalent gaseous fuel” has not been made, as the permit application submitted by NSSA did not address fuels other than natural gas for the *reheat furnace*.

C: **Attachment “B”, Section III.D Monitoring, Recordkeeping, and Reporting for DCW Cooling Towers and Section III.E Monitoring, Recordkeeping, and Reporting for ICW Cooling Towers**

Paragraph 1 - Replace the text with the following eliminating the requirement for installation of water flow rate measurement instruments.

The Permittee shall maintain pump flow curve data for each pump and a record of the maximum number of circulating water pumps operating during any period for the purpose of estimating the maximum water flow rate through the cooling tower.

Reason: In the case of the ICW there is not enough straight length of pipe above

ground that meets the criteria for flow meter installation (10 times the diameter downstream and 5 times upstream). This criteria specifies the conditions necessary for laminar flow and accurate readings. It is also the experience of the Company's engineers that flow meters in this environment are a very high maintenance item requiring frequent replacement. It should also be noted that both of these water systems operate cyclically, i.e., the pumps are switched on and off up to three times per hour, leaving stagnant water in the pipes for periods of time. This cyclical operation will affect the ability to monitor an accurate hourly flow rate. Using pump curves, the water flow will be estimated in a worst case scenario, as if water was flowing all of the time.

The Company also notes that the monitoring, record keeping and reporting requirements currently included in the permit for the DCW and ICW cooling towers are not warranted based on the fact that these emission sources have a minimal air quality impact. The dispersion modeling results show that the two cooling towers contribute only a total of $0.03 \mu\text{g}/\text{m}^3$ to the predicted 24-hour PM_{10} PSD increment of $18.0 \mu\text{g}/\text{m}^3$ (50% control efficiency for paved roads) and $0.63 \mu\text{g}/\text{m}^3$ to the predicted 24-hour PM_{10} PSD increment of $23.4 \mu\text{g}/\text{m}^3$ (0% control efficiency for paved roads). These predicted results reflect the U.S. EPA proposed (October 2001) revisions to fugitive dust emission calculations from unpaved and paved roads and normal operating conditions. On this basis, the level of stringency currently included in the permit for monitoring cooling tower operation is expensive and simply not warranted by any environmental benefit. The Company requests the ADEQ to modify the permit terms and conditions for the ICW and DCW cooling towers as specified above.

- R: The Department agrees that maintenance of records showing water pump specifications will provide environmental protection that is equivalent to that which would be achieved by the flow monitoring required by the permit terms included in the proposed permit. The requested change has been made.
- C: Attachment "B", Section III.D Monitoring, Recordkeeping, and Reporting for DCW Cooling Towers and Section III.E Monitoring, Recordkeeping, and Reporting for ICW Cooling Towers

Paragraph 2 - Replace the text with the following:

An estimated circulating water flow rate exceeding the circulating water flow rate limitation listed in paragraph I.C.3.b for DCW [I.D.3.b for ICW] of this Attachment may be considered unacceptable operation of the cooling tower. A calculated cooling tower particulate emission estimate, based on the measured solids content and the estimated maximum hour circulated water rate, that exceeds the maximum emission rate at which compliance with the ambient impact standards has been demonstrated may be considered credible evidence of a period

of excess emissions.

Reason: The indicated maximum circulating cooling water flow rates are the nominal design circulating flow rates for each tower system. The pump systems are installed with one spare pump for maintenance service capability. In the case of the DCW the Company currently has three [3] pumps: 2 at 6,000 gpm capacity and 1 at 4,000 gpm capacity. The total installed capacity of 16,000 gpm slightly exceeds the tower design basis of 14,000 gpm, but normal maximum operation is 2 pumps operating at about 8,500 gpm total. In the case of the ICW the Company currently has five [5] pumps, each having 7,200 gpm capacity. The total installed theoretical capacity (not including system losses) of 36,000 gpm slightly exceeds (4%) the tower design standard of 34,500 gpm, but normal operation is 4 pumps operating at 28,800 gpm or less. There is no regulatory standard limiting the water flow rates, and the predicted cooling tower particulate emissions have negligible contribution (2%) to the predicted aggregate air quality impacts of all particulate sources. If necessary, the Company can verify the insignificant impact of cooling tower particulate emissions by using cooling tower emission estimate calculations based on the installed pump capacity.

The Company also notes that the monitoring, recordkeeping and reporting requirements currently included in the permit for the DCW and ICW cooling towers are not warranted based on the fact that these emission sources have a minimal air quality impact. The dispersion modeling results show that the two cooling towers contribute only a total of $0.03 \mu\text{g}/\text{m}^3$ to the predicted 24-hour PM_{10} PSD increment of $18.0 \mu\text{g}/\text{m}^3$ (50% control efficiency for paved roads) and $0.63 \mu\text{g}/\text{m}^3$ to the predicted 24-hour PM_{10} PSD increment of $23.4 \mu\text{g}/\text{m}^3$ (0% control efficiency for paved roads). These predicted results reflect the U.S. EPA proposed (October 2001) revisions to fugitive dust emission calculations from unpaved and paved roads and normal operating conditions. On this basis, the level of stringency currently included in the permit for monitoring cooling tower operation is expensive and simply not warranted by any environmental benefit. The Company requests the ADEQ to modify the permit terms and conditions for the ICW and DCW cooling towers as specified above.

- R: The requested change has not been made. However, the circulating water flow rate limits in Specific Conditions I.C.3.b and I.D.3.b have been revised to reflect the installed pump capacity.
- C: Attachment "B", Section III.D Monitoring, Recordkeeping, and Reporting for DCW Cooling Towers and Section III.E Monitoring, Recordkeeping, and Reporting for ICW Cooling Towers

Paragraph 3 - Change the total solids monitoring frequency from once per day to once per month, and revise with the text below.

Permittee shall employ best management practices for monitoring cooling water quality and shall measure and record once per month the solids content [including Total Suspended Solids (TSS) and Total Dissolved Solids (TDS)] of the circulating water used in the direct cooling water mechanical-draft wet cooling tower. Records correlating the measured total solids content to the routinely monitored values shall be maintained, and whenever the monitored data indicates the total solids operating limitation in paragraph I.C.3.c may be exceeded, the Permittee shall sample, measure and record the total solids content. Solids measurement shall be performed using EPA Method 160.3 (in Methods for the Chemical Analysis of Water and Wastes. EPS-600/4-79-020. U.S.EPS, Environmental Monitoring and Systems Laboratory, Cincinnati, Ohio), or Department approved alternative method.

Reason: The Company has a zero discharge process water cooling system. Because the system is zero discharge, water quality is an important component of our operation. The process cooling water either directly or indirectly contacts critical components of our process equipment and our products. Excessive levels of hardness, iron or silica may cause scaling, plugging of nozzles, heat exchangers, pipes, etc., and consequently can result in expensive cleaning or costly equipment replacement. Excessive levels of mill scale will cause line blockages and may damage our pumps, again leading to expensive repairs and or replacements. Therefore it is imperative that the Company maintain a balance between increasing our cycles of concentration (water conservation initiative) and maintaining acceptable water quality (equipment preservation). The Company understands ADEQ's concerns about particulate matter emissions from mill sources. However the Company is equally concerned with maintaining a proper balance of total solids in our water system for operation and maintenance reasons. As a result of this concern, daily (Monday through Friday) conductivity, silica, hardness, and iron readings are taken from both cooling water systems, and each system is equipped with either deep bed pressure or side stream filters. Our standard operating practices are universally accepted as best management practice. No facilities routinely sample and measure for total solids, because it does not influence daily operating practice. Balancing the cooling water system is so important to the Kingman mill's operation that, several years ago, the Company hired an onsite contractor with the sole responsibility of maintaining the water systems within the established process control ranges. Because of these existing controls, which have been in place for more than four years, the Company believe that weekly TS analysis combined with continuous circulation rate data is adequate to assure the ADEQ of compliance with the PM₁₀ emission limit for the cooling towers. Daily TS measurements in addition to the normal cooling tower monitoring practices would impose an unnecessary additional 21-hour/week staff burden on the facility without providing additional compliance assurance or emission reduction.

The Company also notes that the monitoring, recordkeeping and reporting

requirements currently included in the permit for the DCW and ICW cooling towers are not warranted based on the fact that these emission sources have a minimal air quality impact. The dispersion modeling results show that the two cooling towers contribute only a total of $0.03 \mu\text{g}/\text{m}^3$ to the predicted 24-hour PM_{10} PSD increment of $18.0 \mu\text{g}/\text{m}^3$ (50% control efficiency for paved roads) and $0.63 \mu\text{g}/\text{m}^3$ to the predicted 24-hour PM_{10} PSD increment of $23.4 \mu\text{g}/\text{m}^3$ (0% control efficiency for paved roads). These predicted results reflect the U.S. EPA proposed (October 2001) revisions to fugitive dust emission calculations from unpaved and paved roads and normal operating conditions. On this basis, the level of stringency currently included in the permit for monitoring cooling tower operation is expensive and simply not warranted by any environmental benefit. The Company requests the ADEQ to modify the permit terms and conditions for the ICW and DCW cooling towers as specified above.

- R: The Department notes that the daily monitoring requirement for cooling water total solids content was included in the proposed permit due to the very small compliance margin that was demonstrated by the Permittee's initial air quality impacts analysis with respect to the *PM* PSD increment. As a result of the more stringent *BACT* emission standards for the *wet cooling towers* that were subsequently imposed by the Department, and considering the revised emission calculation methodology for paved and unpaved roads recently distributed by the U.S. EPA, the predicted compliance margin demonstrated in the revised air quality impacts analysis is much larger. For these reasons, the Department agrees that these daily monitoring requirements are unduly burdensome, will provide no discernible environmental benefit, and are unnecessary. The requested change has been made.
- C: Attachment "B", Section III.D Monitoring, Recordkeeping, and Reporting for DCW Cooling Towers and Section III.E Monitoring, Recordkeeping, and Reporting for ICW Cooling Towers

Paragraph 4 - Replace with the following text:

A measured solids content exceeding the circulating water solids limitation listed in paragraph I.C.3.c for DCW [I.D.3.c for ICW] of this Attachment may be considered unacceptable operation of the cooling tower. A calculated cooling tower particulate emission estimate, based on the measured solids content and the estimated maximum hourly circulating water rate, that exceeds the maximum emission rate at which compliance with the ambient impact standards was demonstrated may be considered credible evidence of a period of excess emissions.

- R: The requested change has not been made. The Department again notes that "emission standard" is defined by A.A.C. R18-2-101.37 as "a requirement established by the state, ... including any requirements which ... prescribe operation or maintenance procedures for a source to assure continuous emission reduction." In addition, "*excess emissions*" is defined by A.A.C. R18-2-101.40 as "emissions of an air pollutant in excess of an emission standard

as measured by the compliance test method applicable to such emission standard.” The limitation on solids content of circulating water is an emission standard, and any exceedance of this emission standard constitutes *excess emissions*.

ABBREVIATIONS

AAAQG	Arizona Ambient Air Quality Guideline
A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
AGFD	Arizona Game and Fish Department
AP3	Accelerated Permit Processing Program
AQD	Air Quality Division
A.R.S.	Arizona Revised Statutes
BACT	Best Available Control Technology
C	Comment
CAA	Clean Air Act
CEMS	Continuous Emission Monitoring System
CERMS	Continuous Emission Rate Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DEC	Direct-Shell Evacuation Control
EAF	Electric Arc Furnace
EASF	Electric Arc Shaft Furnace
EIS	Environmental Impact Statement
ESPCC	Enhanced Secondary Post-Combustion Chamber
FLM	Federal Land Manager
HAP	Hazardous Air Pollutant
gr/dscf	Grains per Dry Standard Cubic Foot
lb/MMBtu	Pound per Million British Thermal Units
LMF	Ladle Metallurgical Furnace
LTF	Licensing Time Frames
MACT	Maximum Achievable Control Technology
µg/m ³	Microgram per Cubic Meter
MMBtu/hr	Million British Thermal Units per Hour
NAAQS	National Ambient Air Quality Standard
NEPA	National Environmental Policy Act
NO _x	Nitrogen Oxide
NO ₂	Nitrogen Dioxide
NOV	Notice of Violation
NSSA	North Star Steel Arizona
NSSO	North Star Steel Ohio
OSHA	Occupational Safety and Health Administration
PCC	Post Combustion Chamber
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PSD	Prevention of Significant Deterioration

R Response
PTE Potential-to-Emit
RBLC RACT/BACT/LAER Clearinghouse
SCR Selective Catalytic Reduction
SEP Supplemental Environmental Project
SNCR Selective Non-Catalytic Reduction
SO₂ Sulfur Dioxide
TSD Technical Support Document
U.S.C. United States Code
USEPA United States Environmental Protection Agency
USFWS United States Fish and Wildlife Service
VOC Volatile Organic Compound